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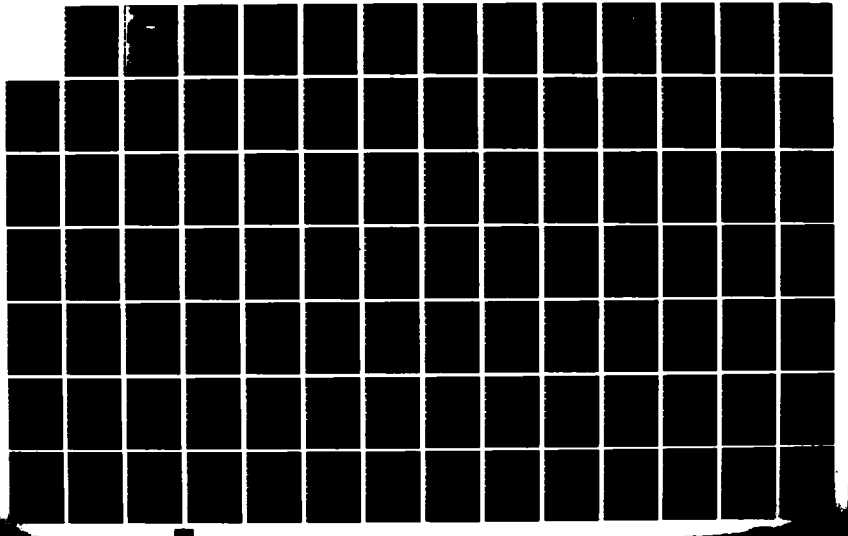

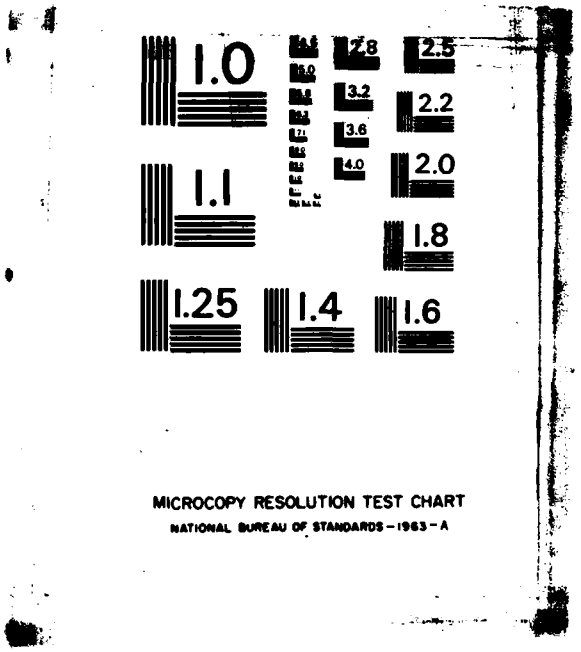
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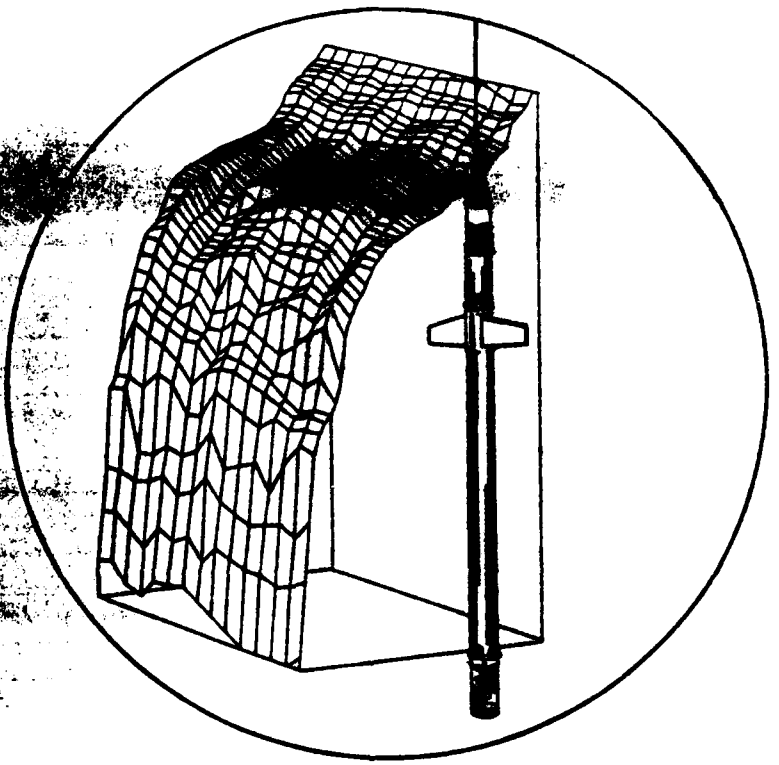

The Rapid Sampling Vertical Profiler MILDEX OCTOBER-NOVEMBER 1983

by

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Hervé H. Dannelongue
Douglas R. Caldwell

College of Oceanography
Oregon State University

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Profiles of temperature, salinity, and sigma-T from the Rapid Sampling Vertical Profiler in MILDEX 1983.

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The Rapid-Sampling Vertical Profiler

MILDEX October-November 1983

Priscilla A. Newberger

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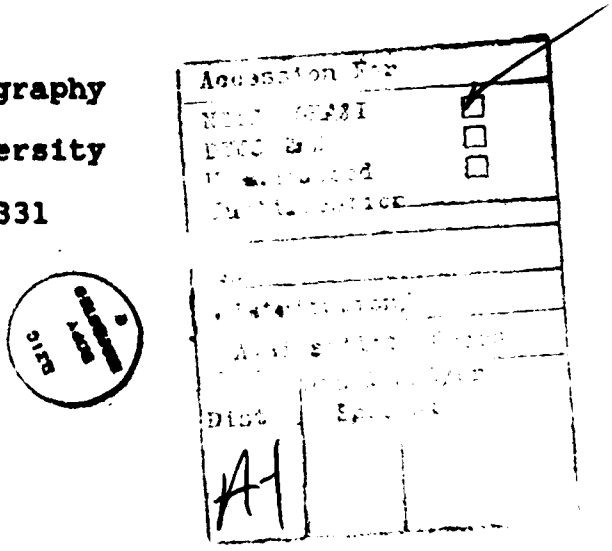


Table of Contents

Acknowledgements

Michael Brown, James Cantey, Kathy Fischer and Melora Park assisted with the data acquisition. Stephen Wilcox and James Cantey built the instruments and did much of the preparation for the cruise. We thank Clayton Paulson and Rick Baumann for providing the navigation and weather data. Funding for the development of the RSVP, for our participation in this cruise and for the preparation of this report has been furnished by th Oceanic Processes Division of the National Aeronautical and Space Administration and the Office of Naval Research under contract N00014-79-C-0004. We especially thank W. Stanley Wilson and Lou Goodman for their encouragement.

CRUISE REPORT

The MILDEX cruise of October - November 1983 was a multiship (including FLIP) experiment involving intensive sampling of the ocean by a variety of instruments. The RV Wecoma operated by Oregon State University College of Oceanography sailed from Newport, Oregon on October 21 and returned to San Diego, California on November 16.

A principle part of the Wecoma's plan was to have been repeated sampling by the Rapid Sampling Vertical Profiler (RSVP) developed at OSU (Newberger et al, 1984). This instrument is deployed from a ship moving at up to 6 knots and measures the conductivity and temperature of the upper 200 meters. These profiles can be repeated every 6 to 8 minutes. When used in conjunction with an acoustic doppler log (Lloyd Regier, SIO) and thermistor chain (Clayton Paulson, OSU), these data provide a detailed picture of the upper ocean.

The RSVP unit and associated on board electronics and recording instruments functioned well throughout the cruise. The cables used to retrieve the instrument and which contain the data links between the instrument and the ship did not function as well as expected from previous experience. These lines lasted an average of only 25 deployments instead of the more than 100 expected. Since the lines were used for the RSVP and the WAZP (Tom Dillon, OSU) and since data under a variety of sampling conditions were required, it was necessary to limit the number of RSVP profiles attempted. Thus although the quality of data collected by the RSVP is excellent, the quantity is far below our expectations.

A modified RSVP, the FAst Microstructure Profiler (FAMP), was used for the first time on this cruise. This instrument consists of RSVP electronics embedded in epoxy to provide protection from the pressure found at depths greater than 200 meters. The unit functioned well on several profiles to 1000 meters and two series of profiles to 400 meters were obtained. Again deployment of this instrument was limited by the short useful life time of the cables.

Figures 1 through 5 summarize the navigation information (from satellite) and weather (from the bridge log). The remainder of the report consists of plots of the data recorded by the FAMP and RSVP. There are two data presentations used. One comprises three plots each with five profiles, the first plot temperature, the second salinity and the last sigma-t. The other is temperature, salinity and sigma-t for one deployment of the five on an expanded scale. It is hoped that this presentation will show the changes in each variable and the relationship between features seen in the various types of measurement.

REFERENCE:

Newberger, P. A., H. H. Dannelongue, D. R. Caldwell, J. L. Cantey and S. D. Wilcox (1984) The rapid sampling vertical profiler (RSVP). Ref. 84-5, College of Oceanography, Oregon State University, Corvallis, OR 97331.

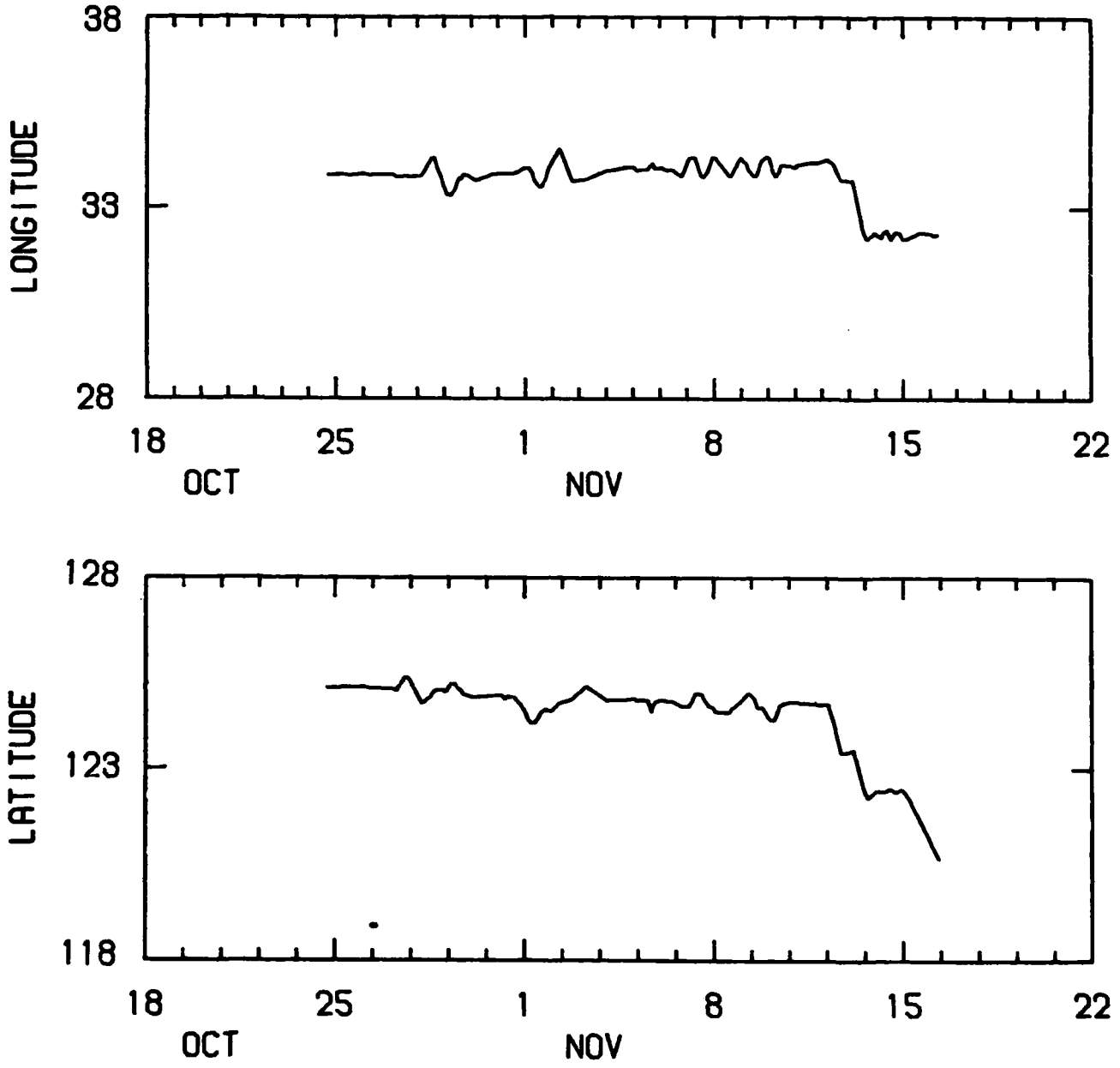


FIGURE 1. SATELLITE NAVIGATION FOR THE RV WECOMA, MILDEX 1983

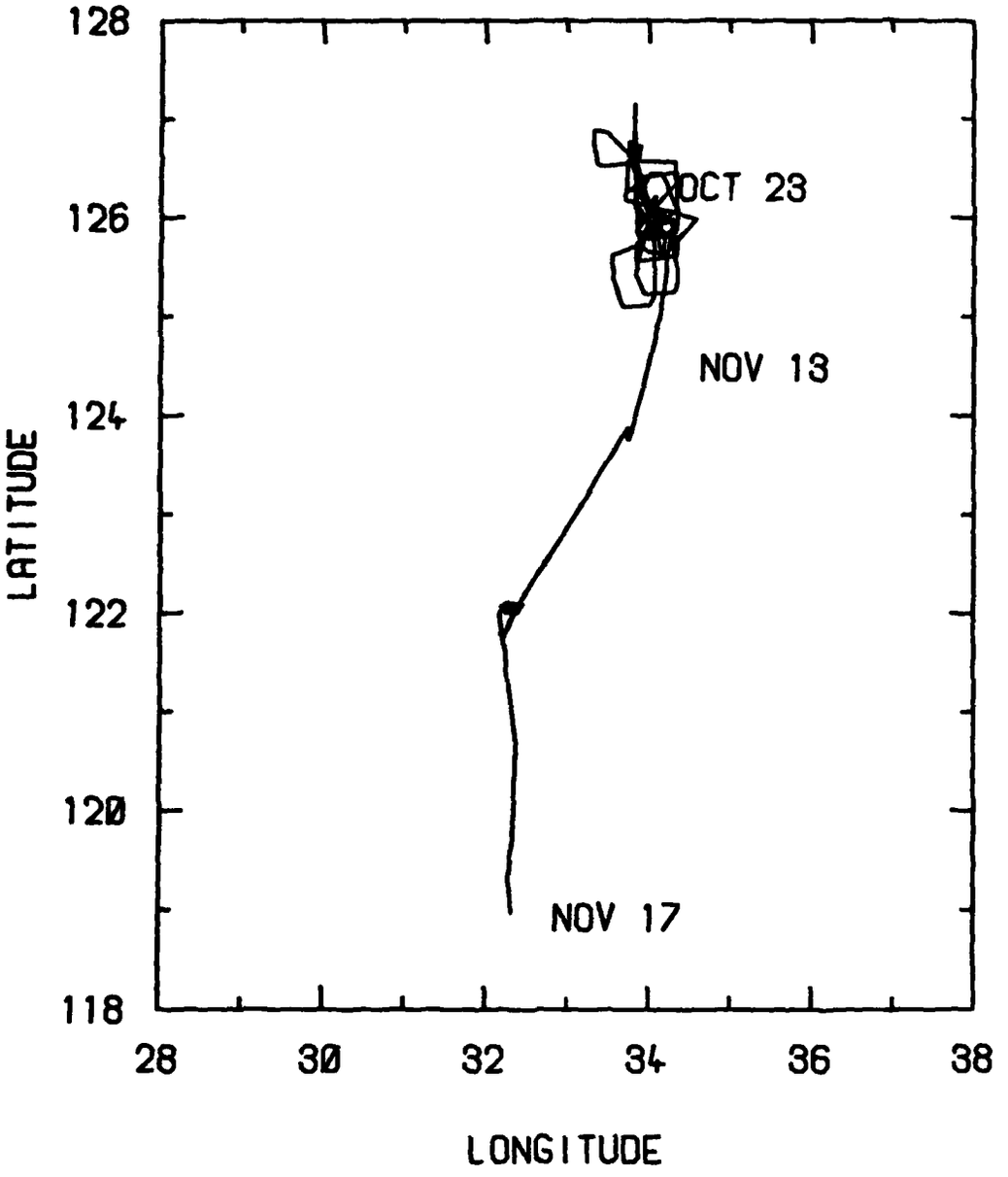


FIGURE 2. CRUISE TRACK RV WECOMA, MILDEX 1983

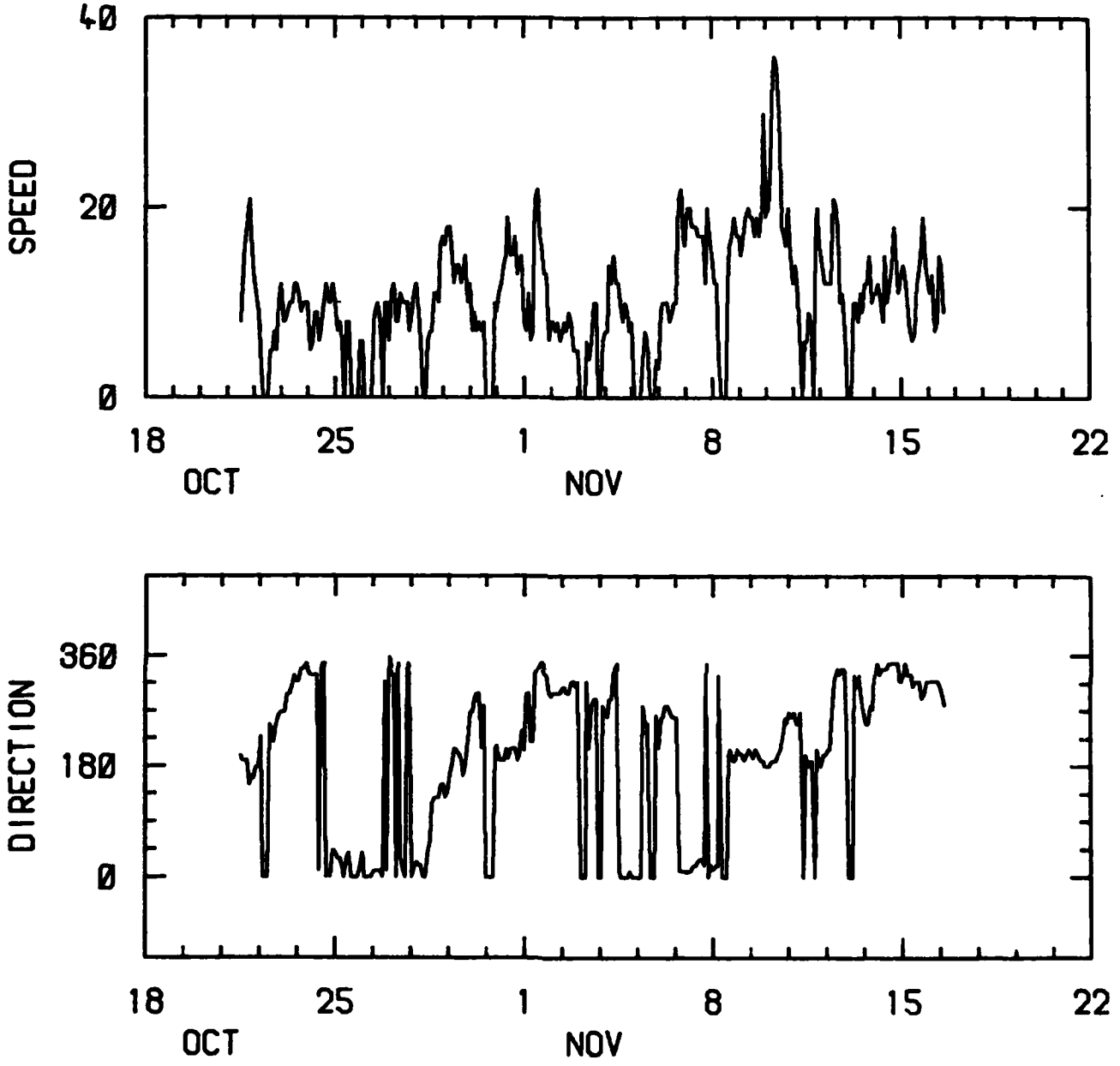


FIGURE 3. WIND SPEED (KNOTS) AND DIRECTION

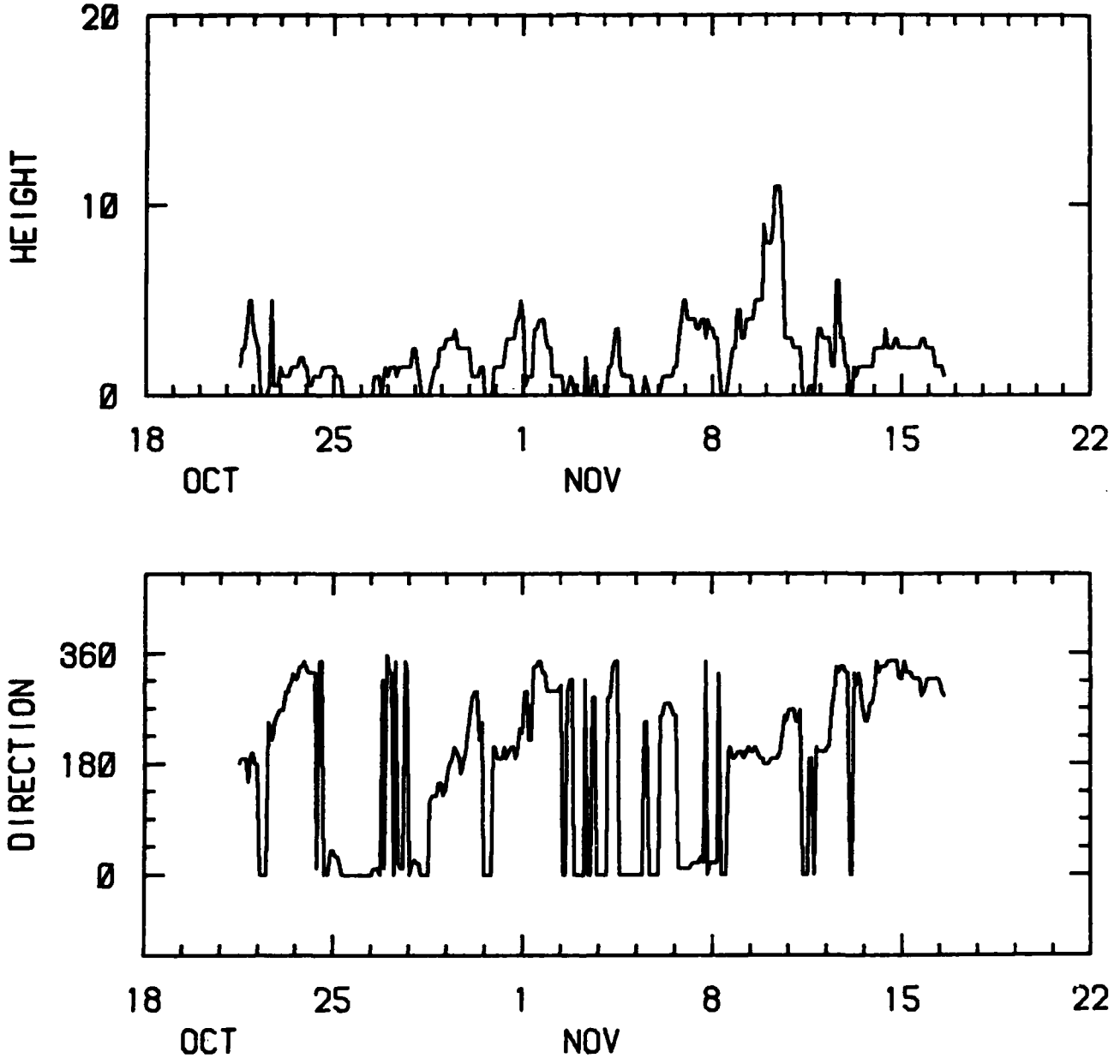


FIGURE 4. SEA HEIGHT (FEET) AND DIRECTION

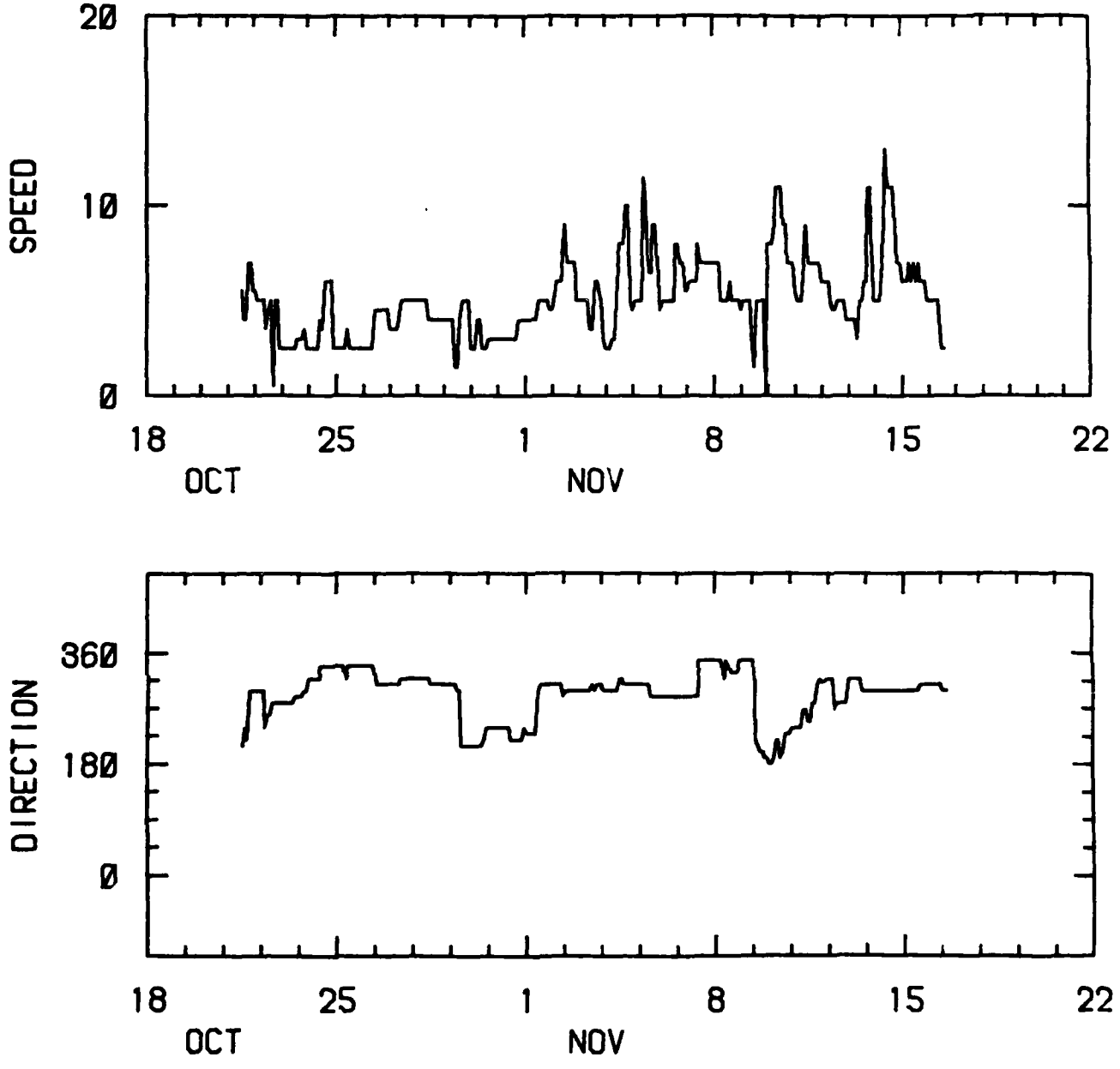
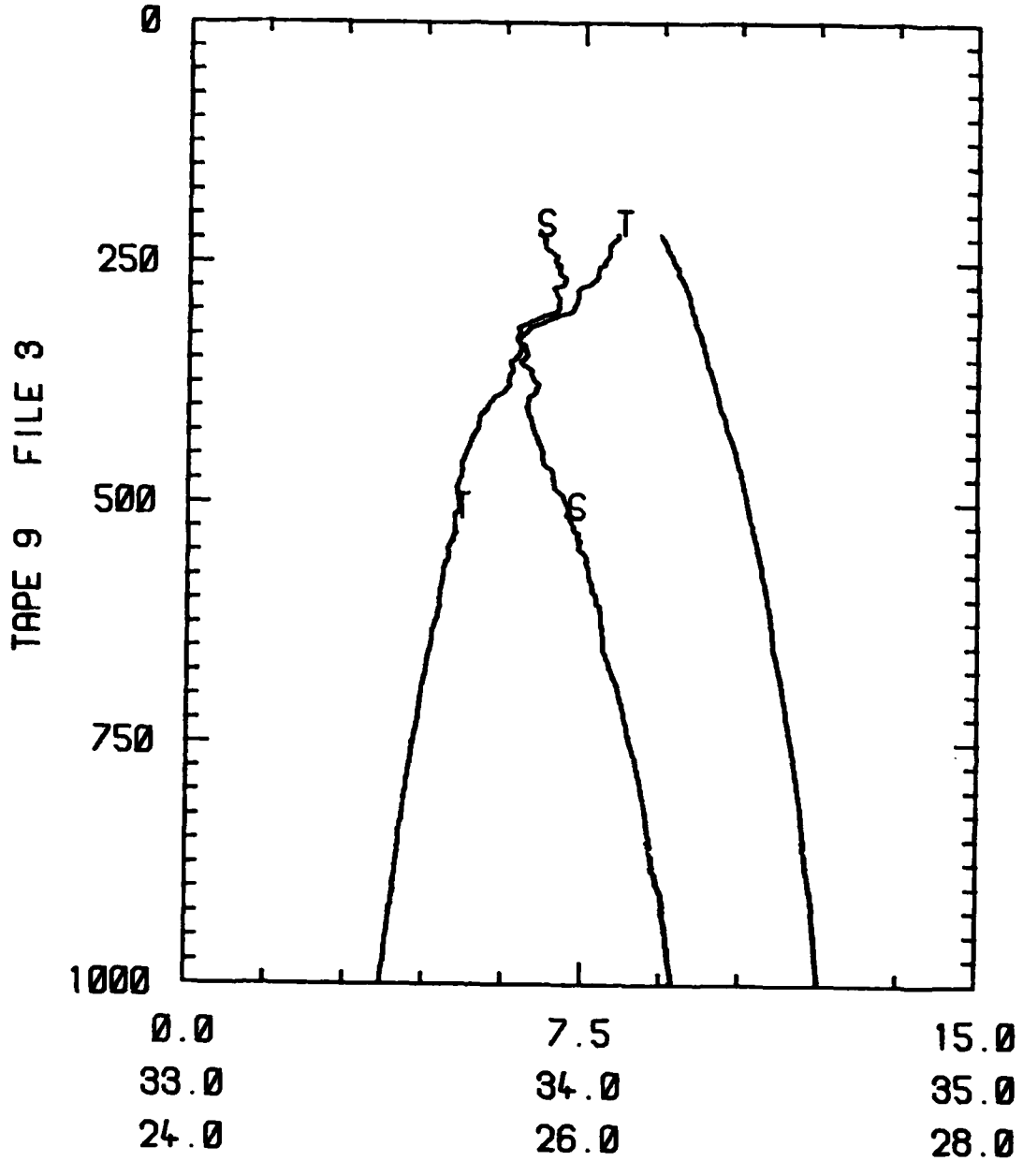


FIGURE 5. SWELL HEIGHT (FEET) AND DIRECTION

FAMP AND RSVP PROFILES



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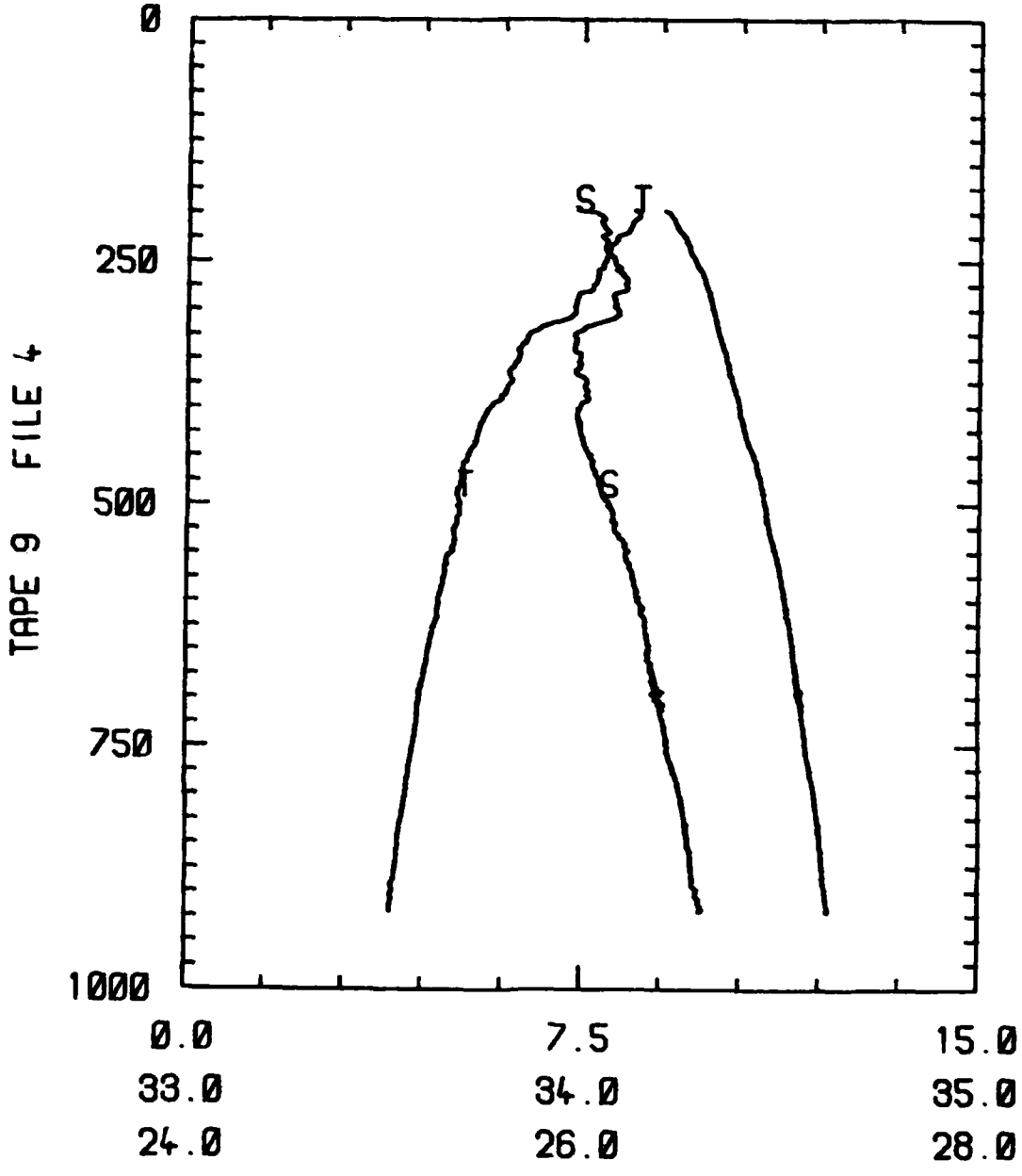

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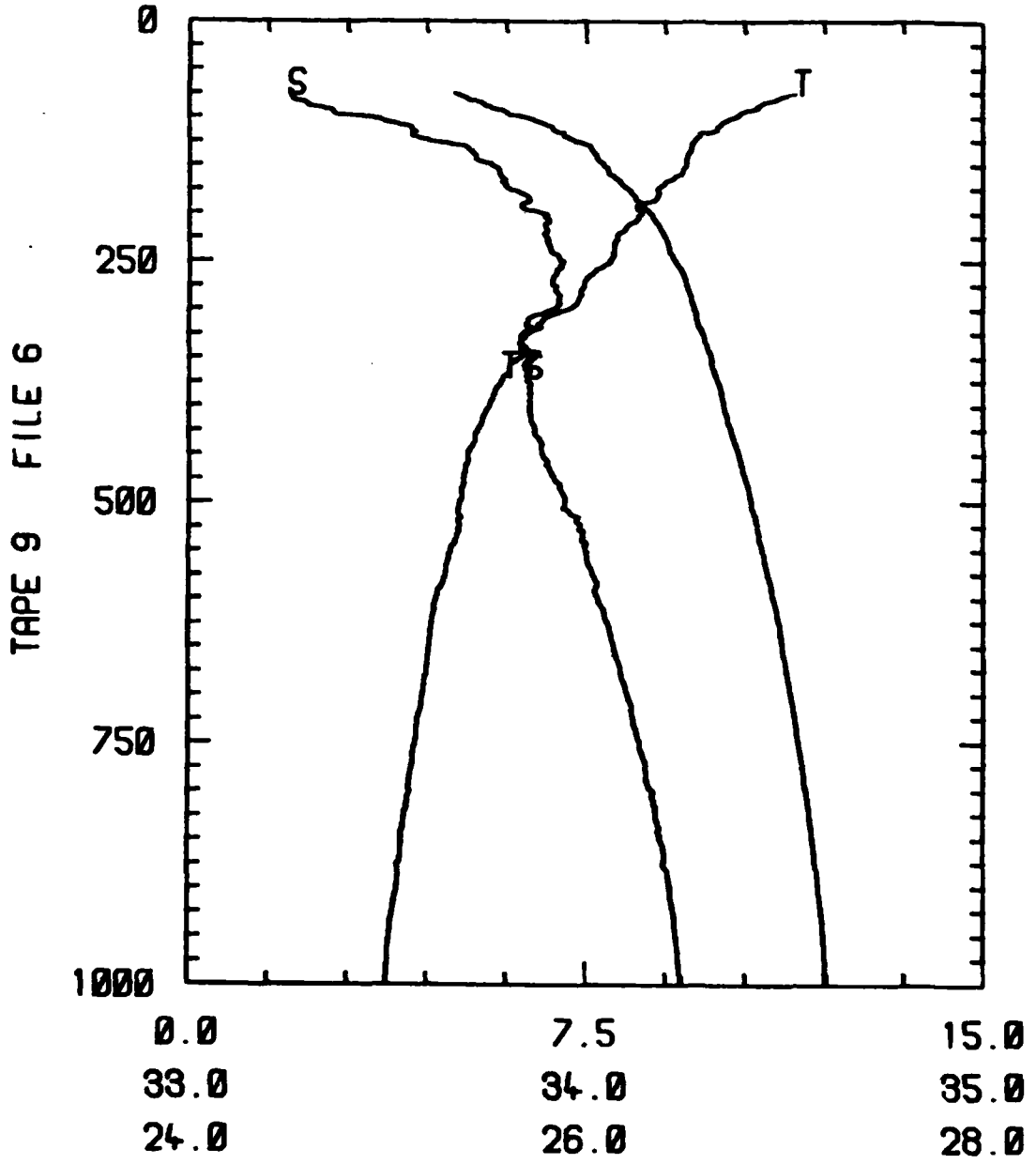

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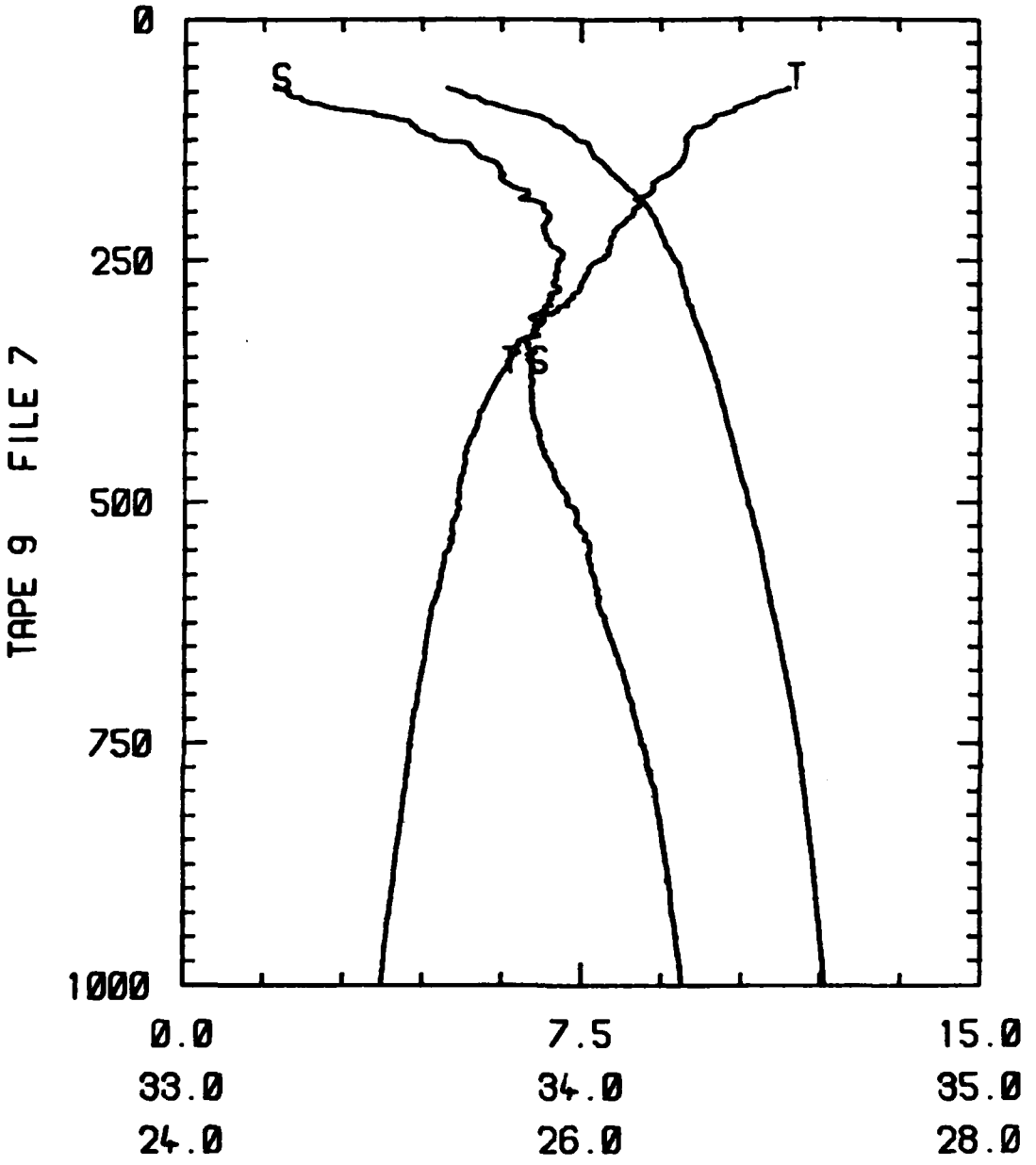

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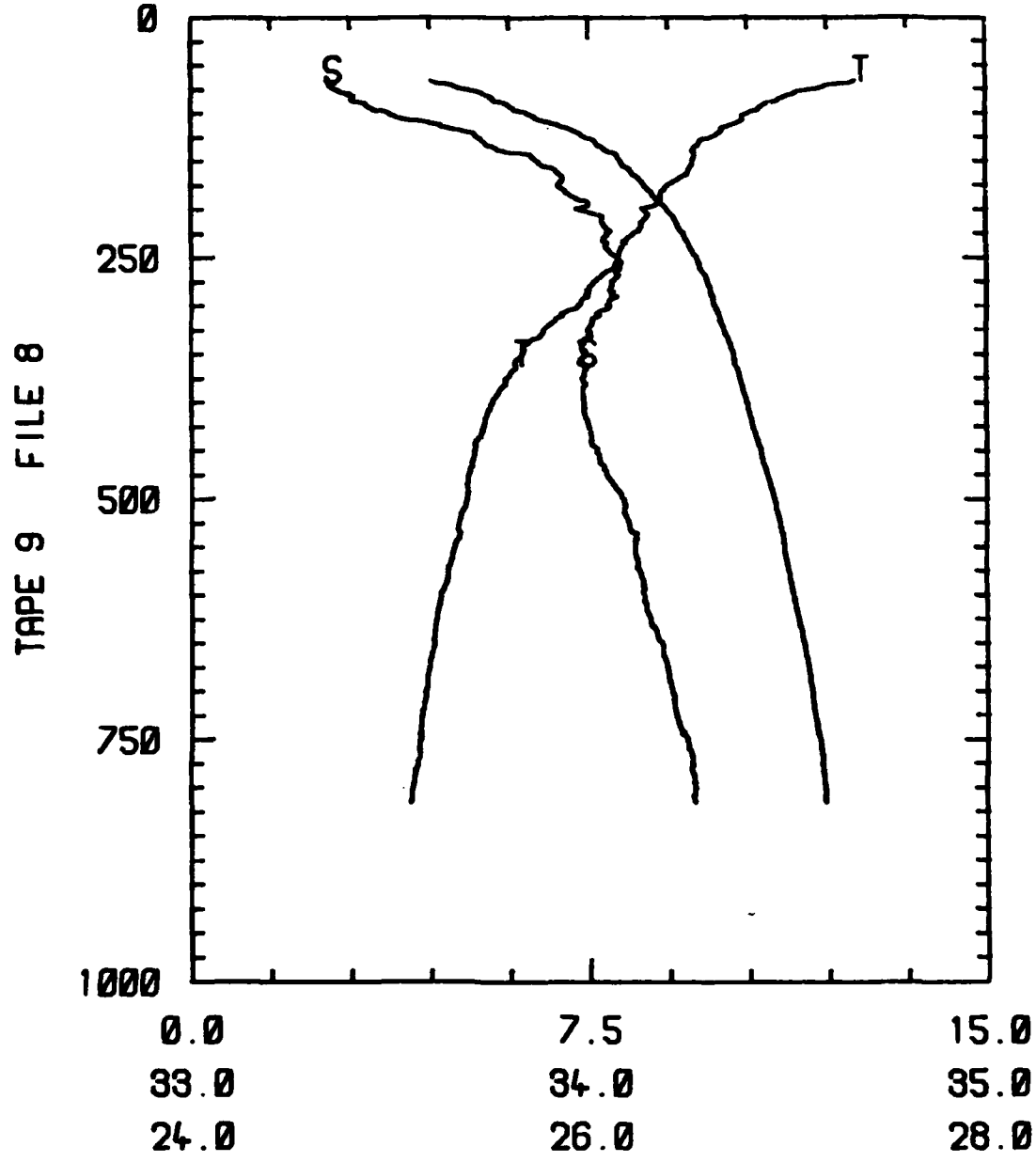

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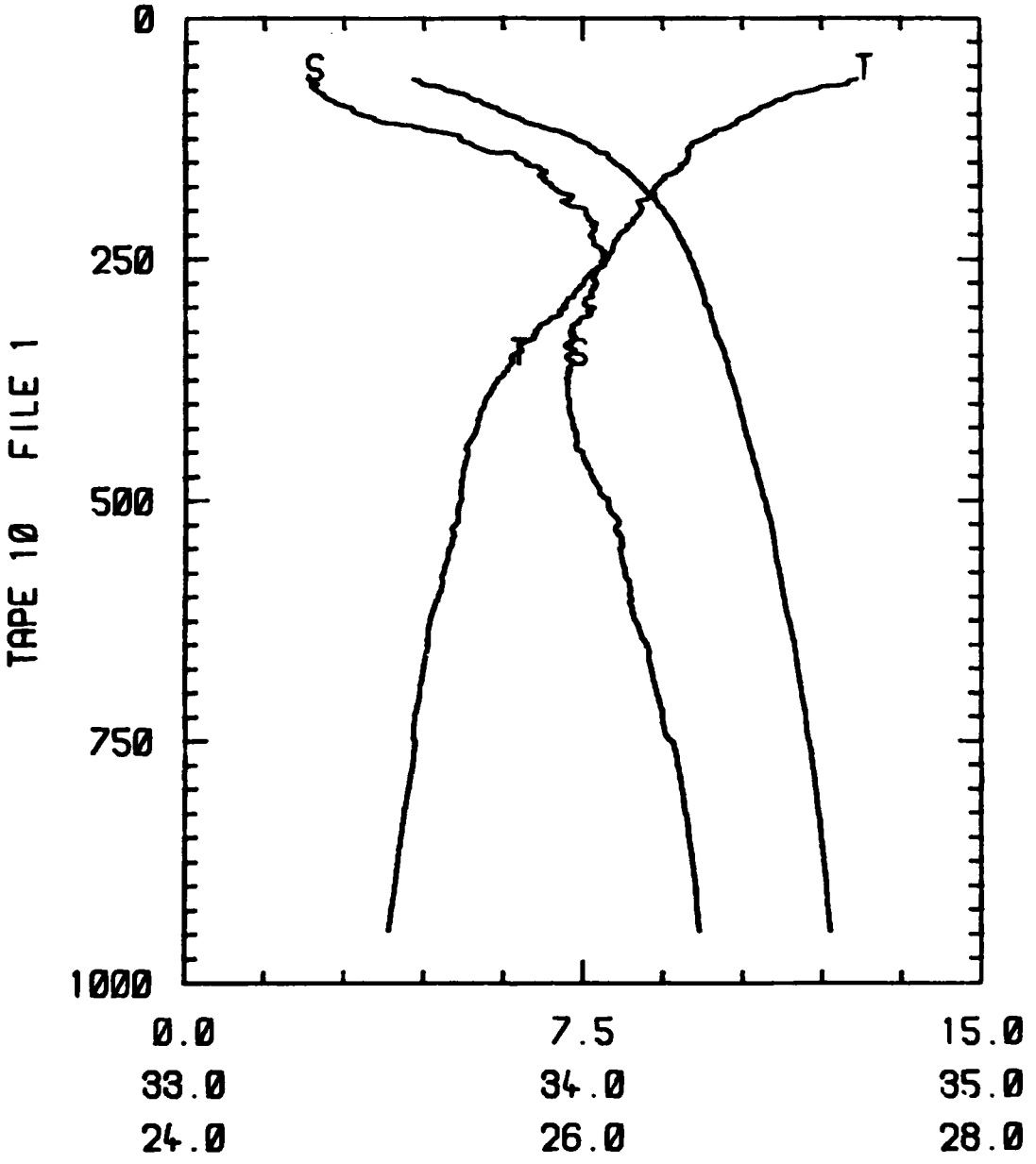

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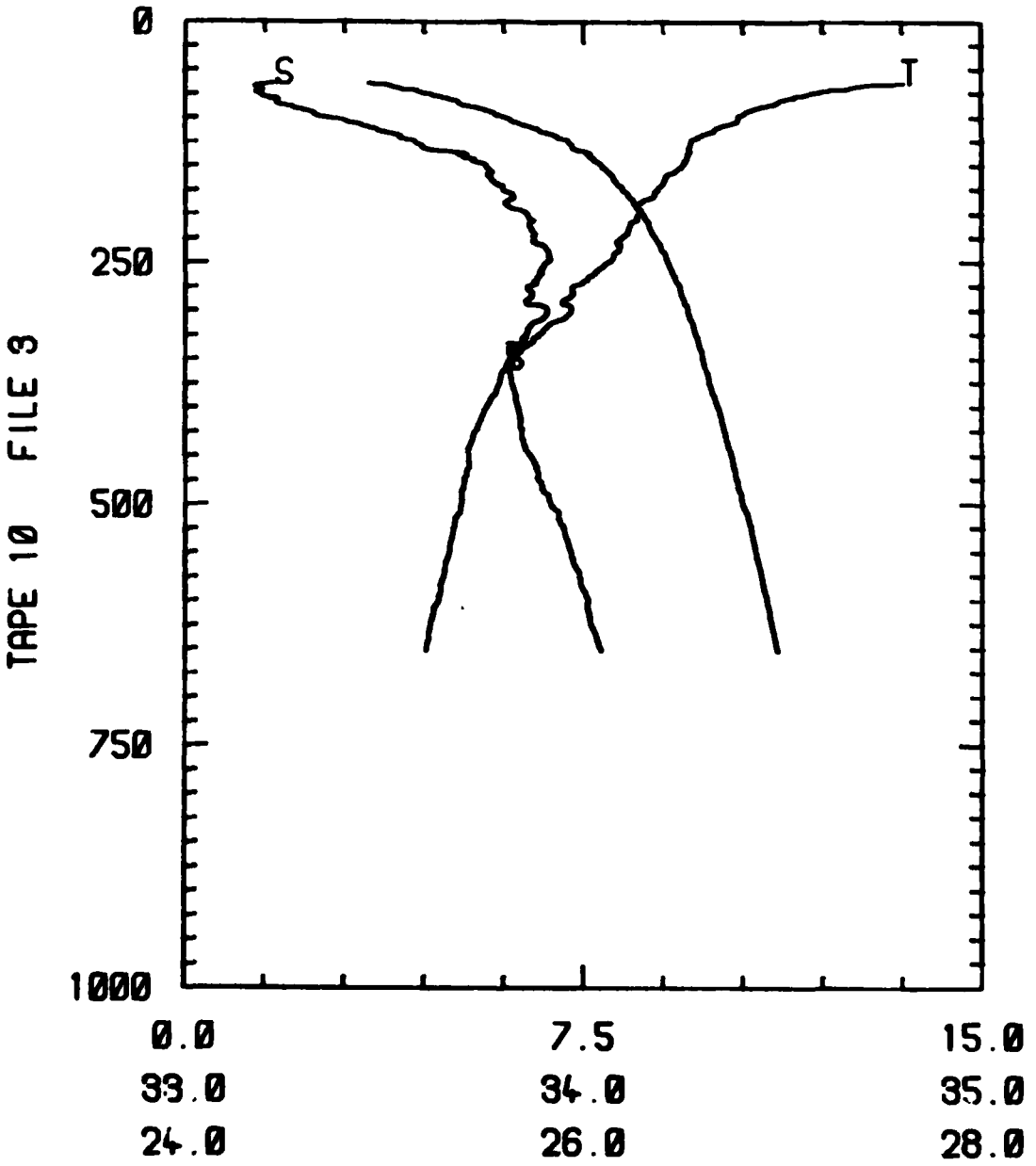

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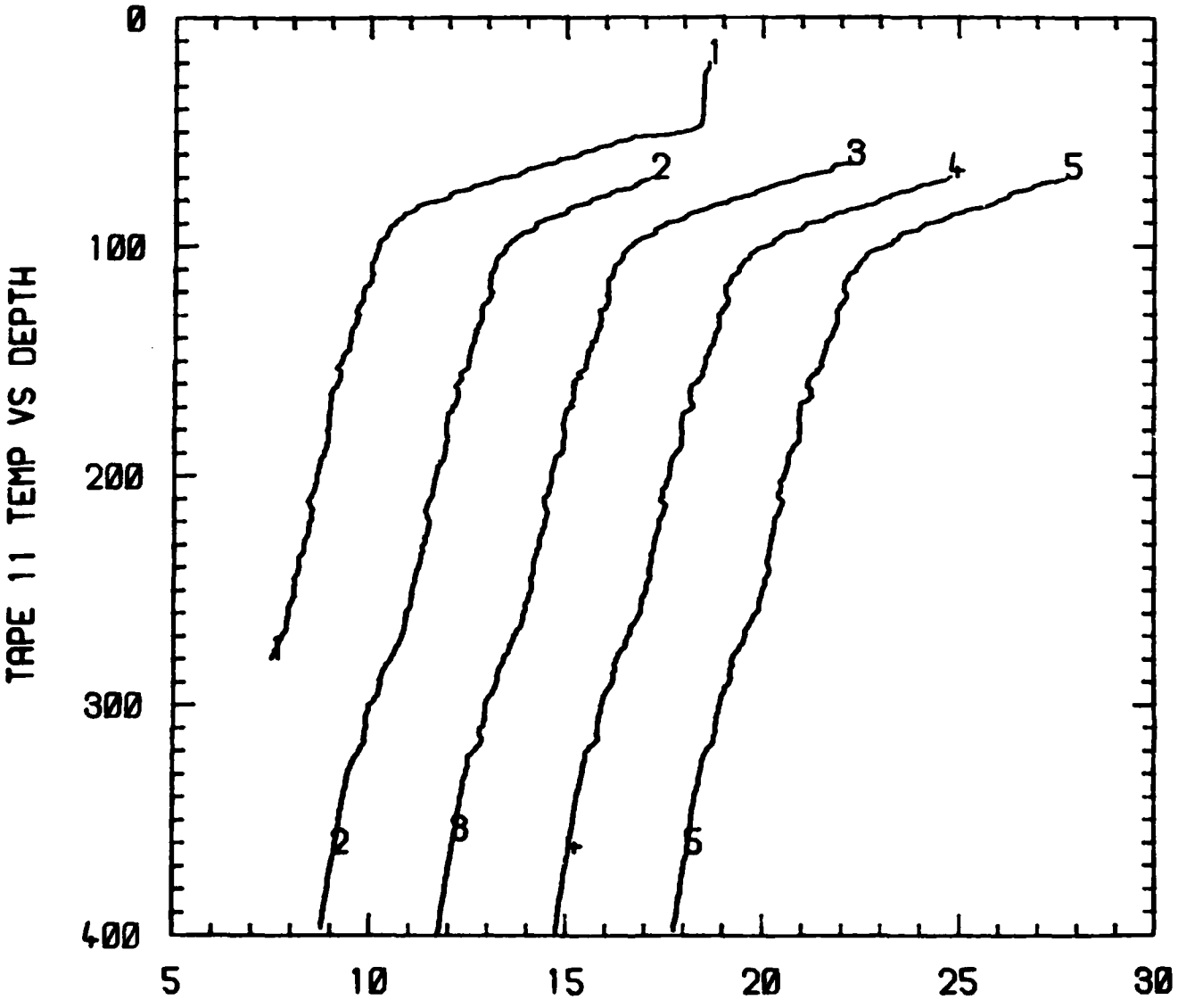

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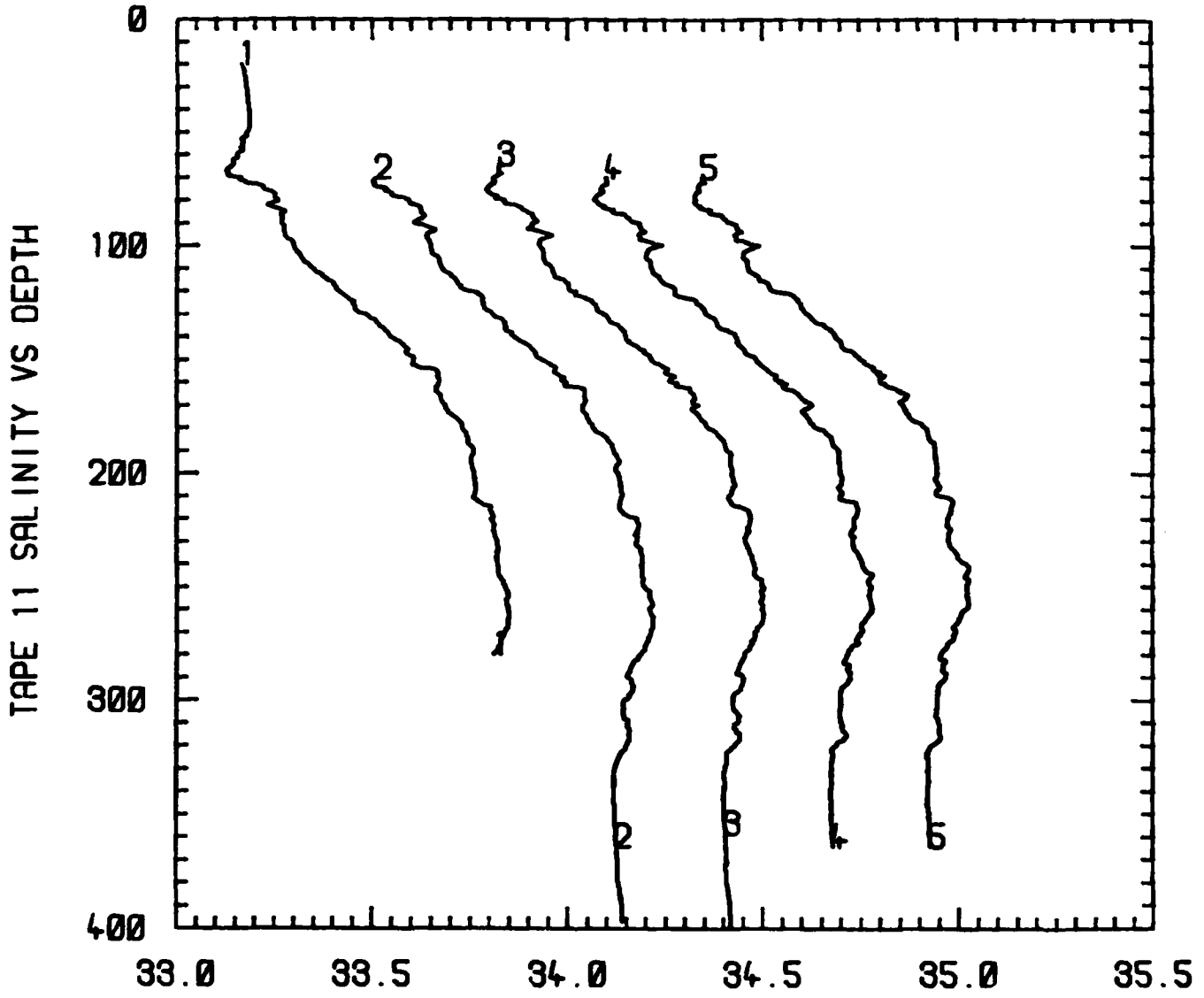

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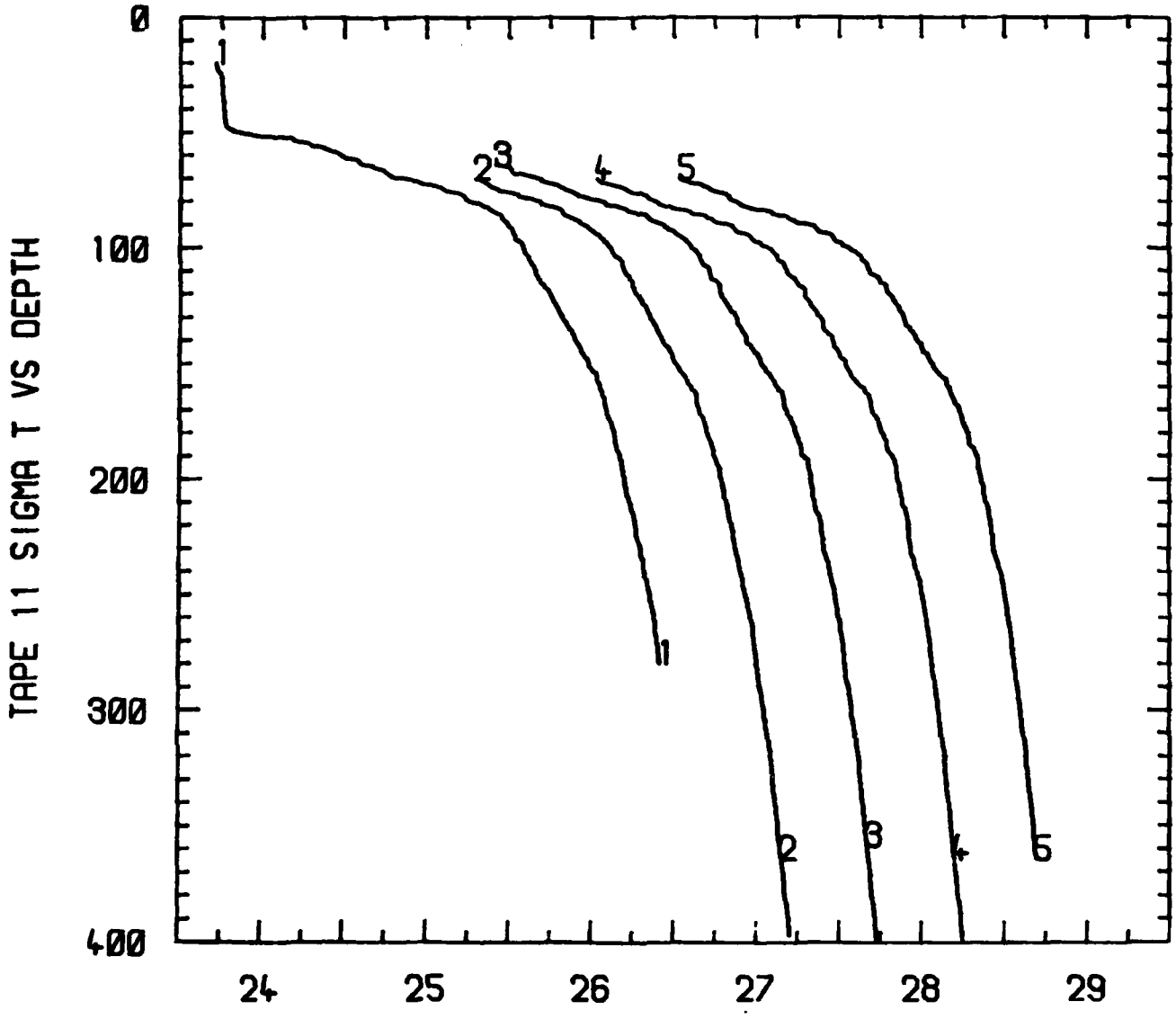

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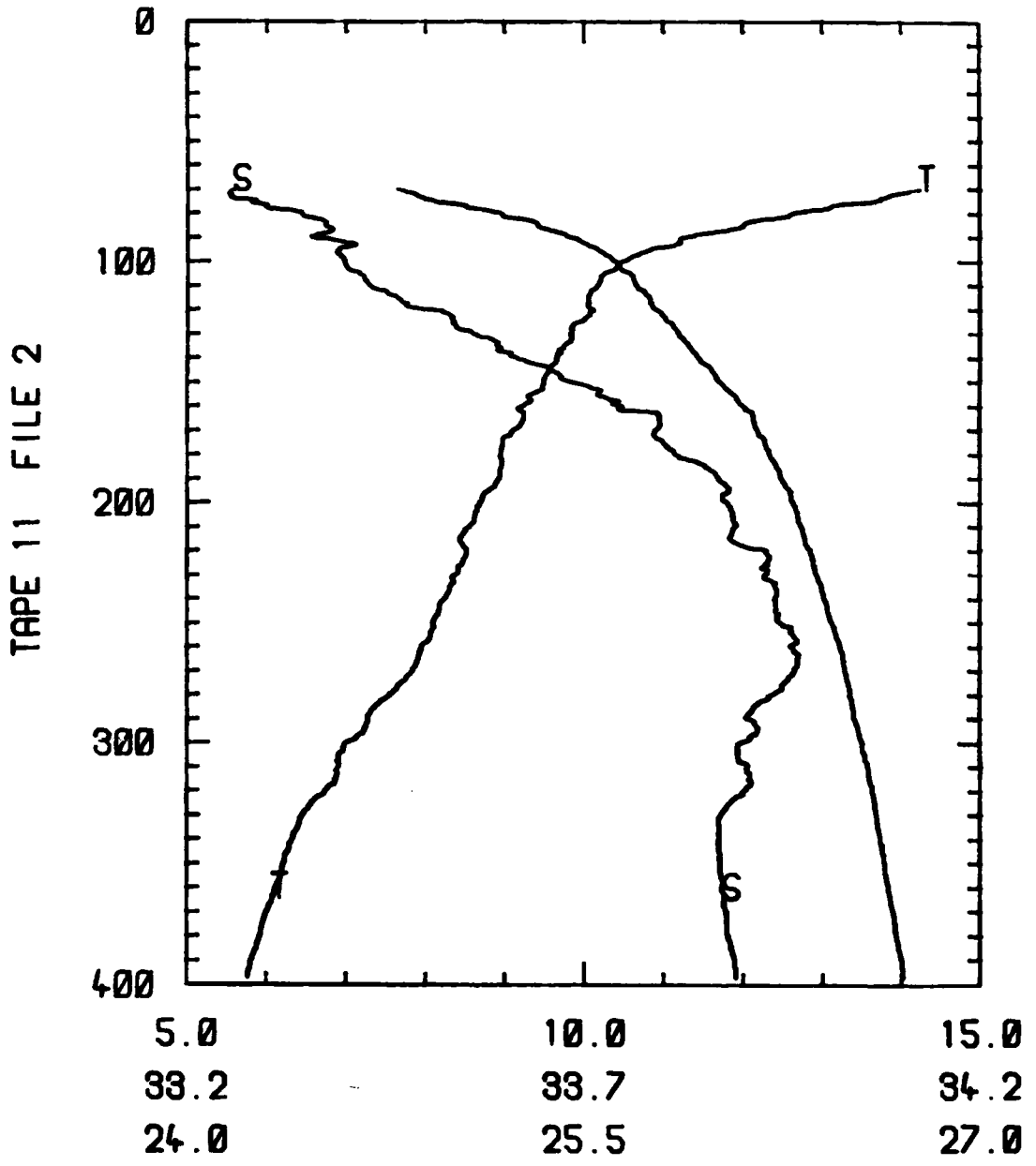

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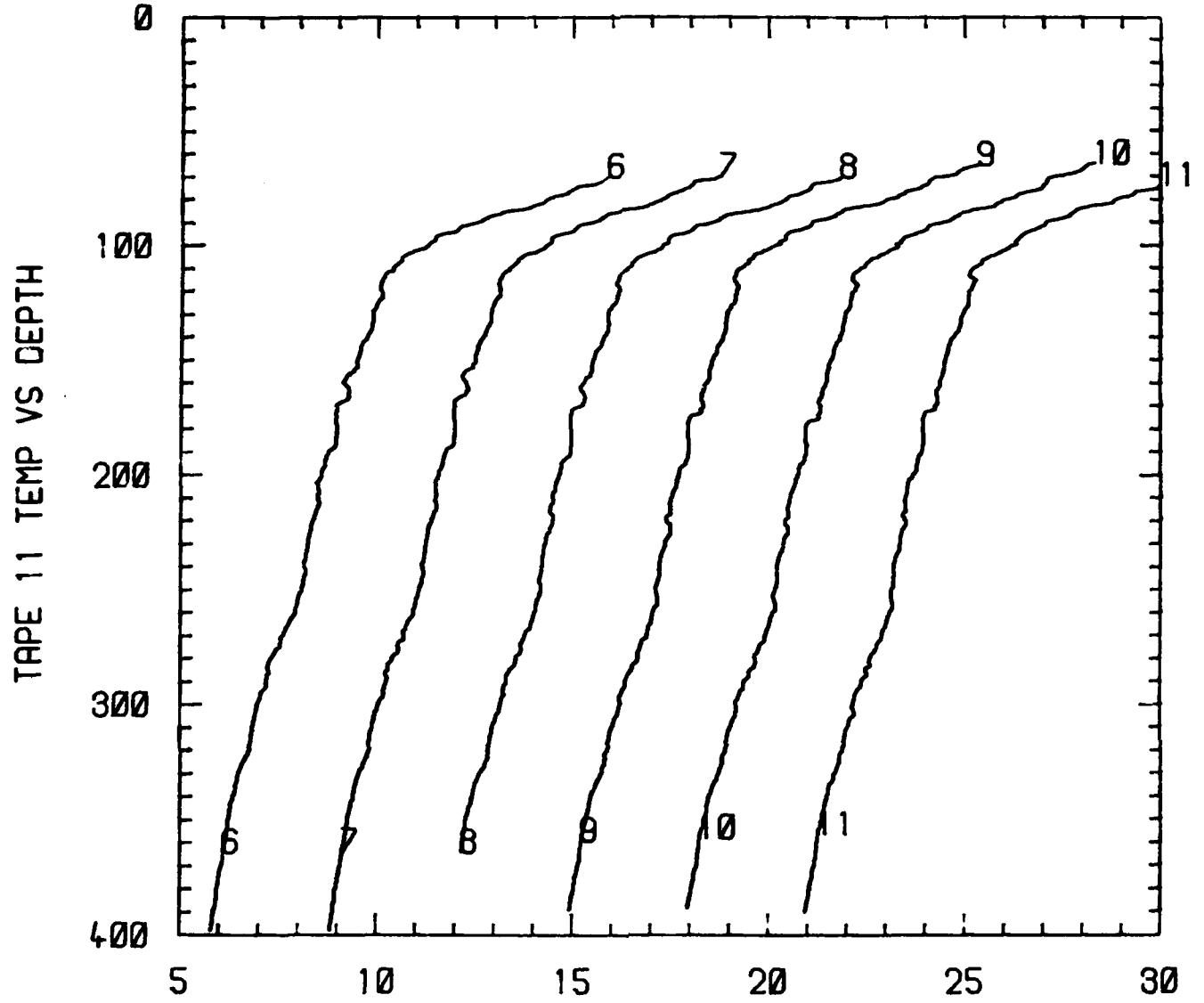

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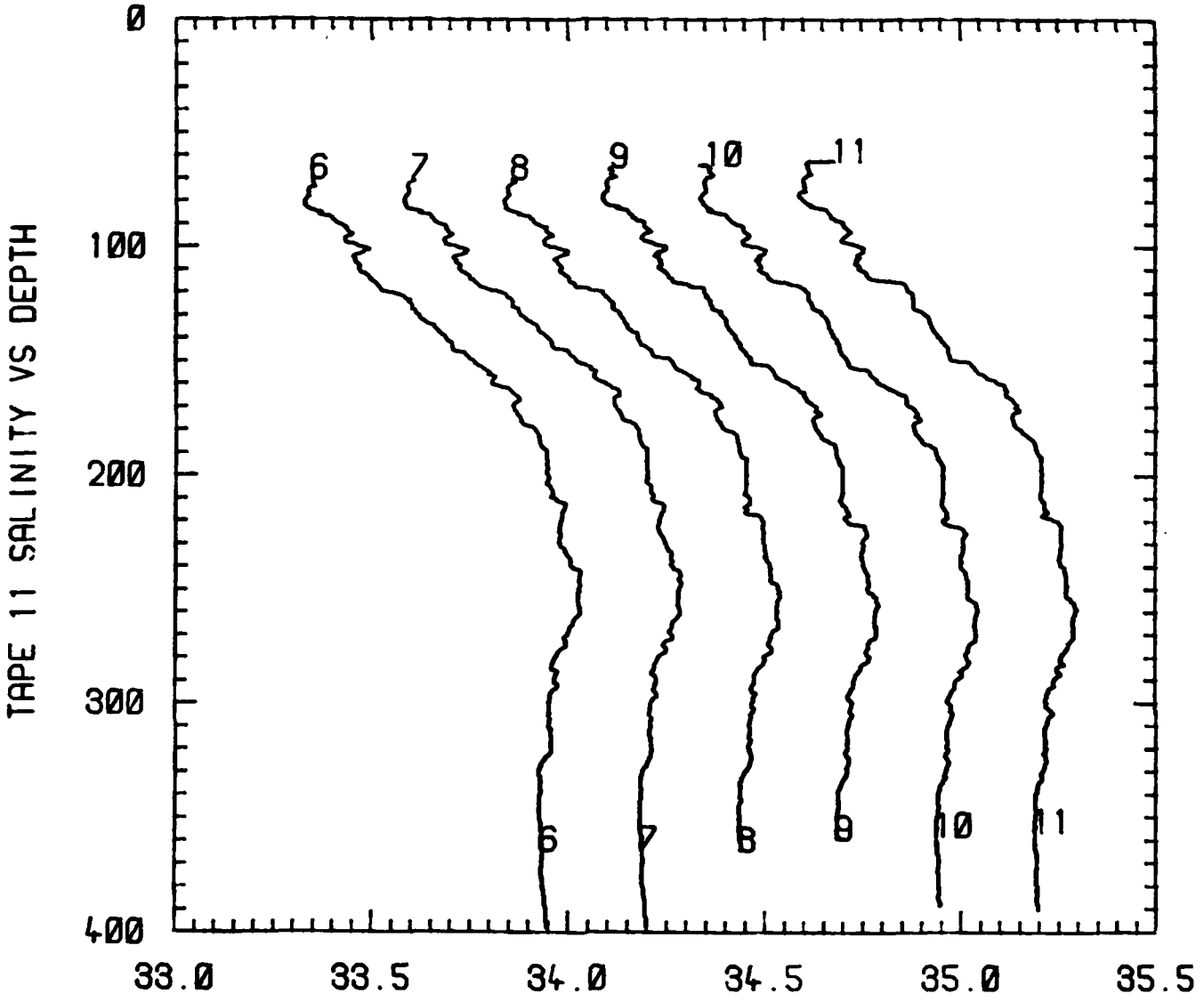

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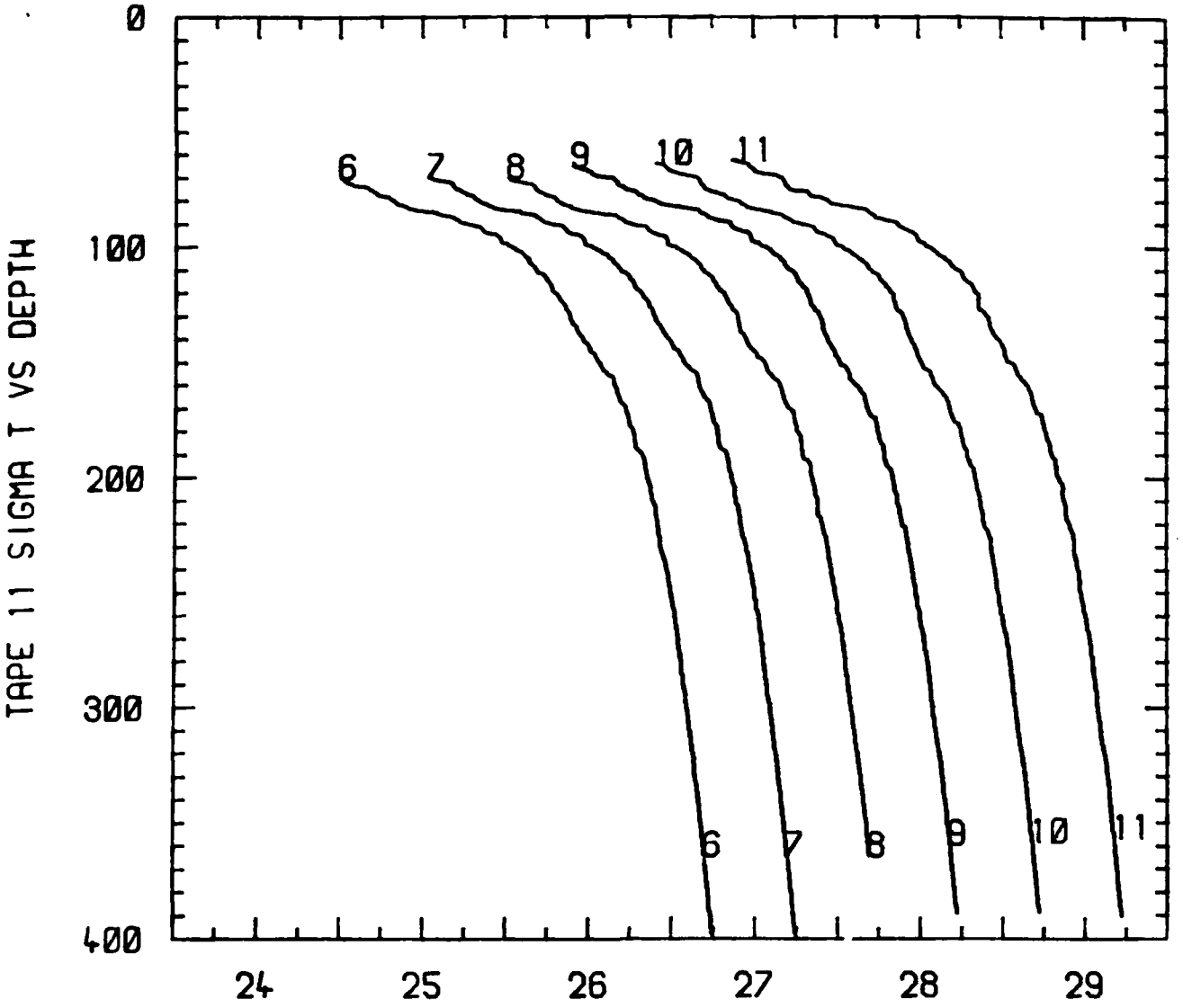

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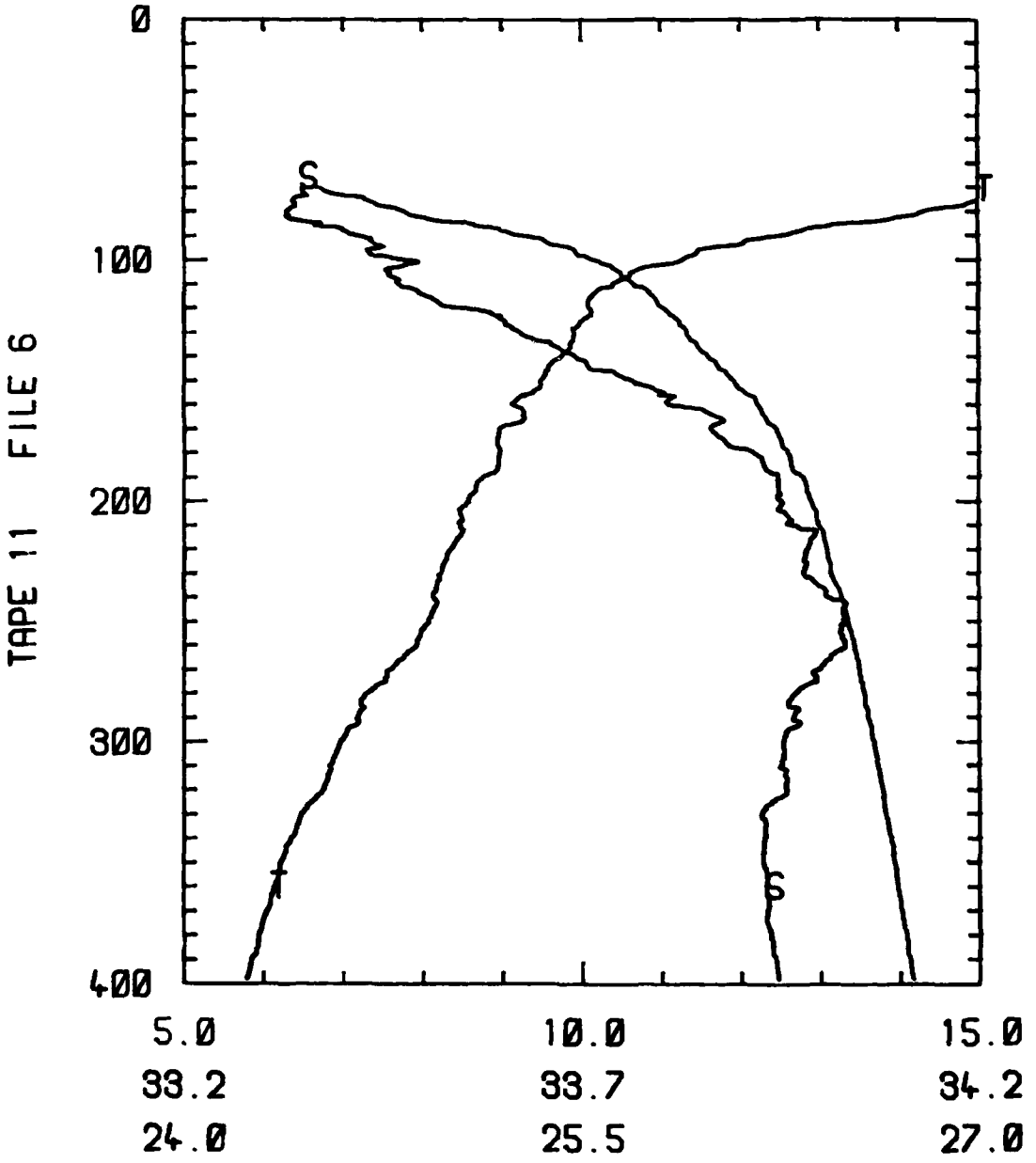

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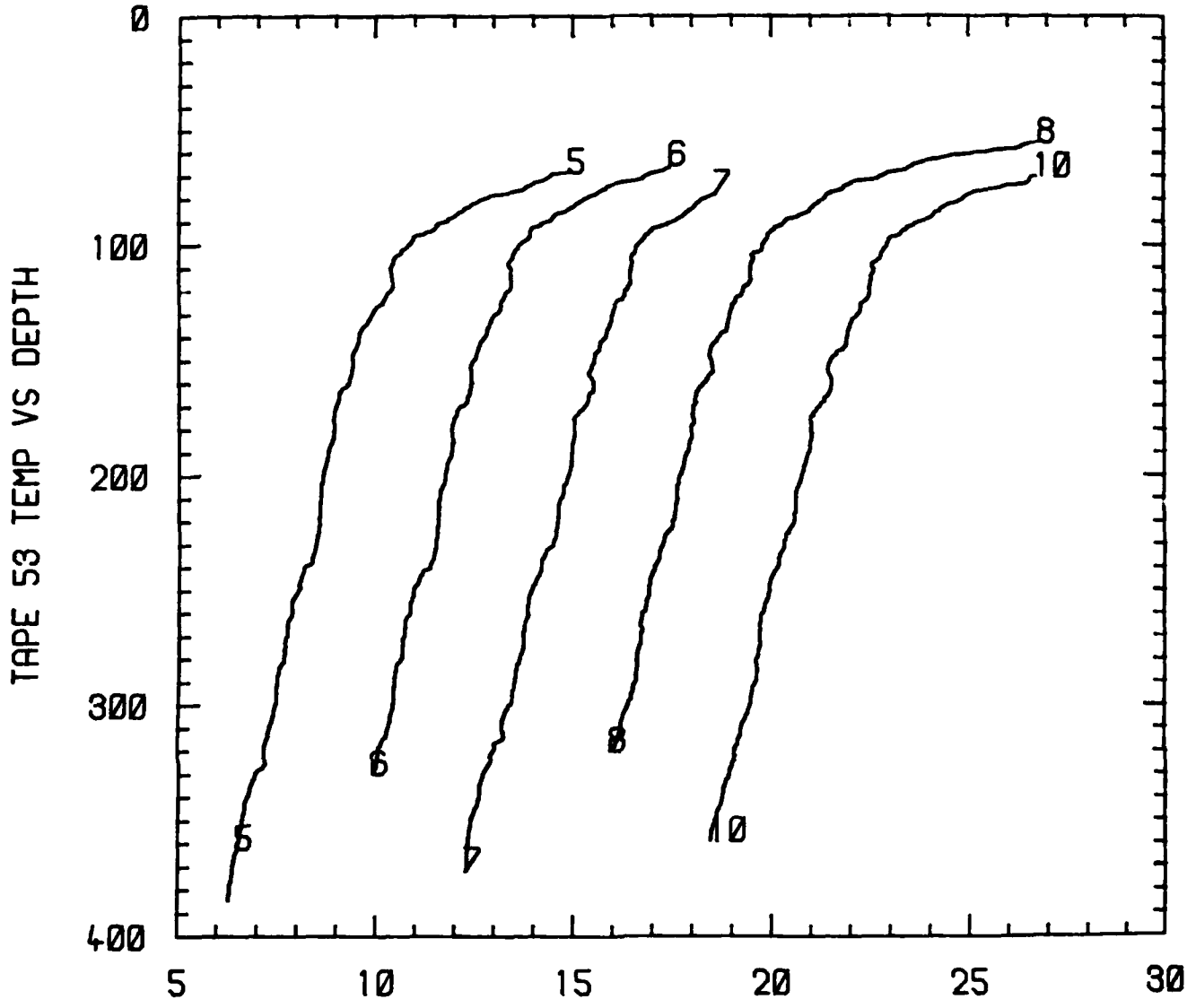

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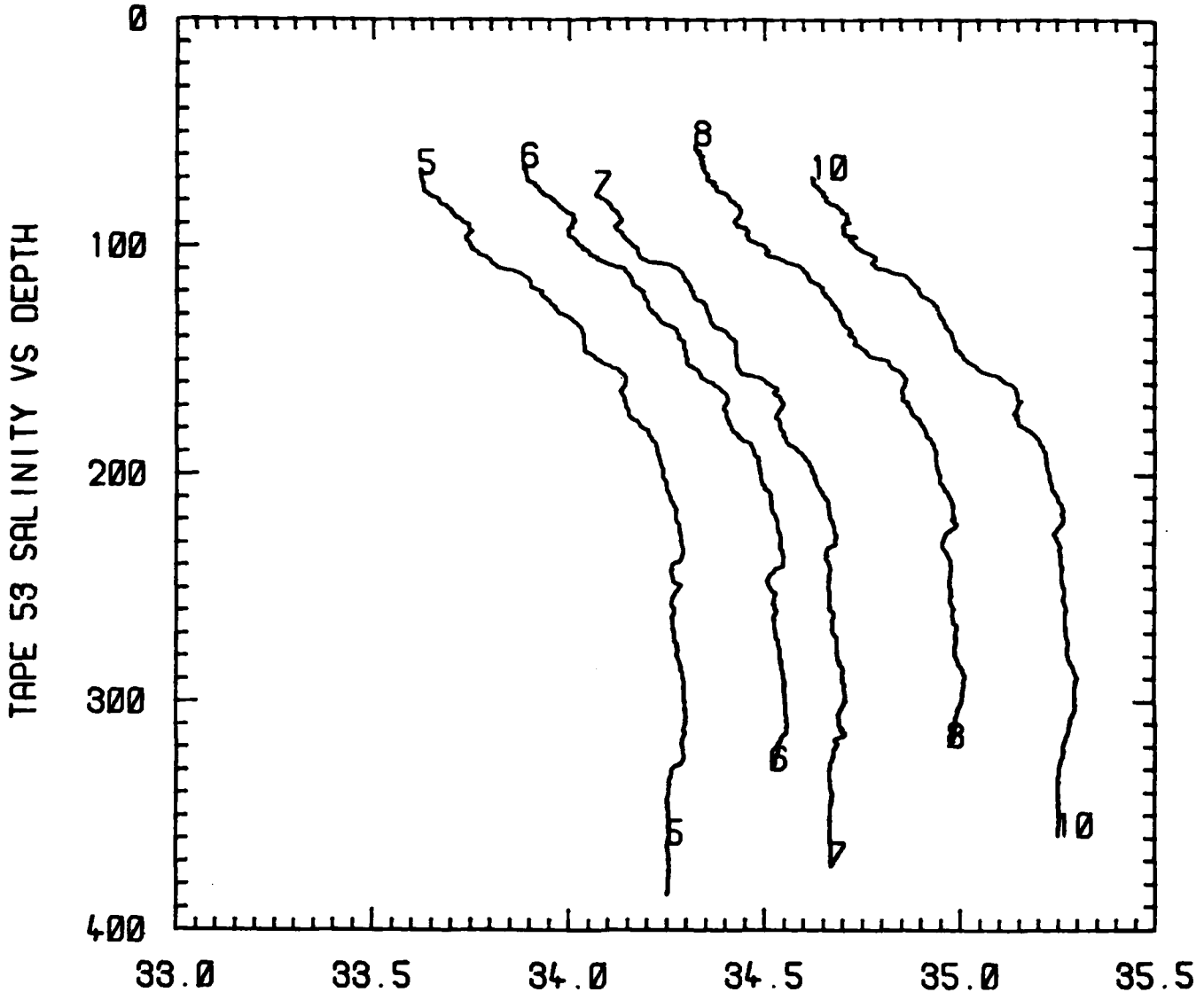

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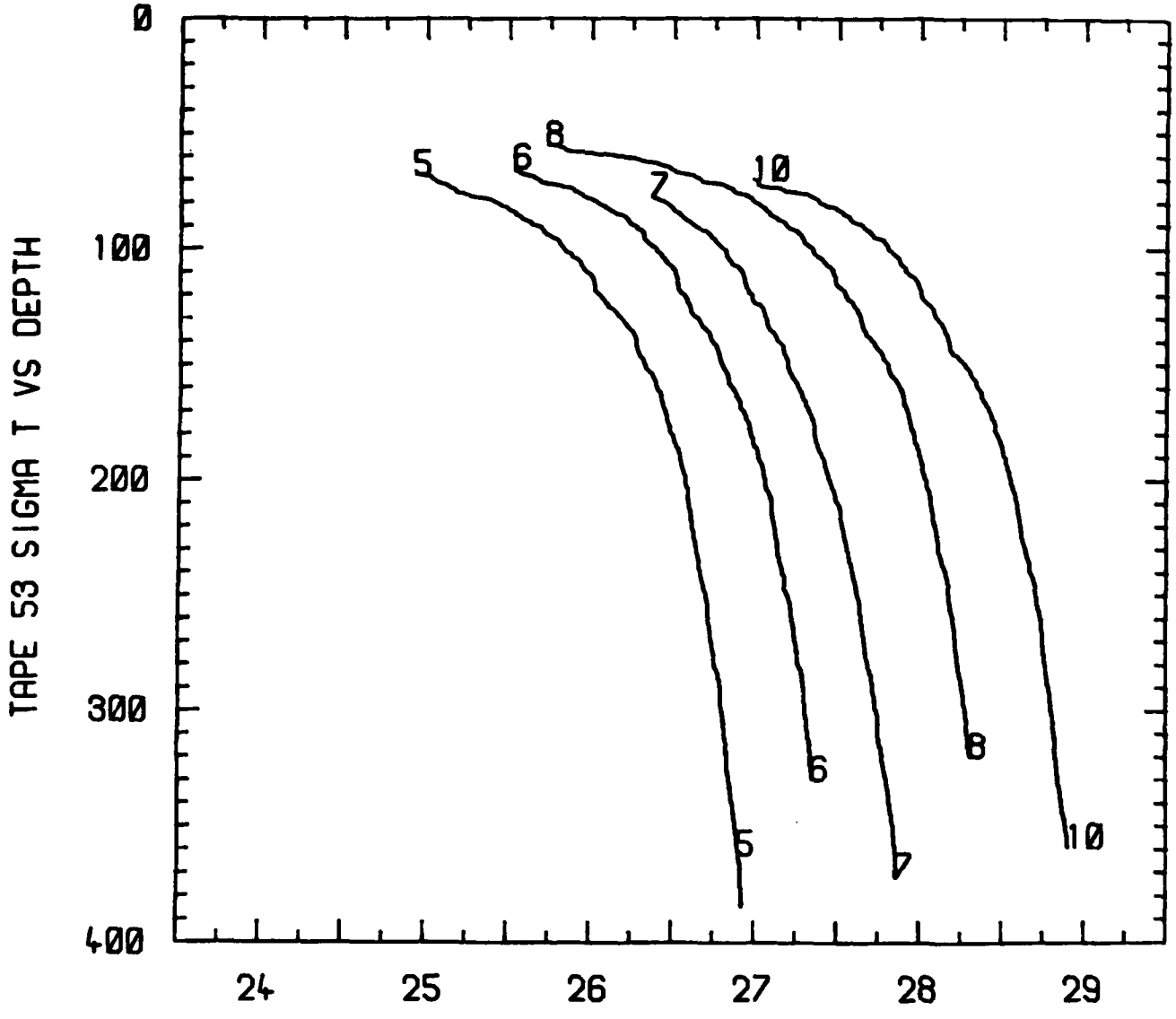

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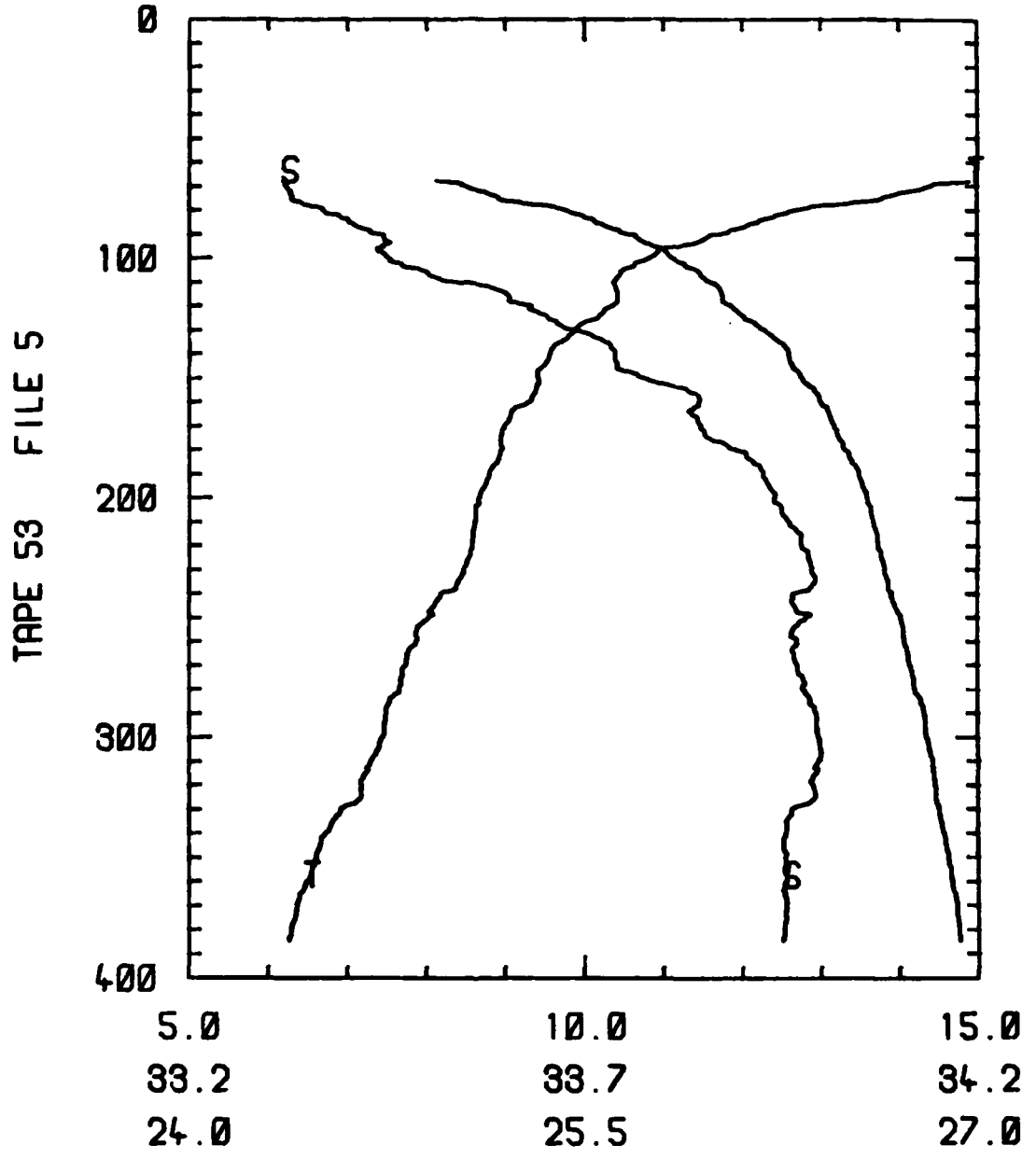

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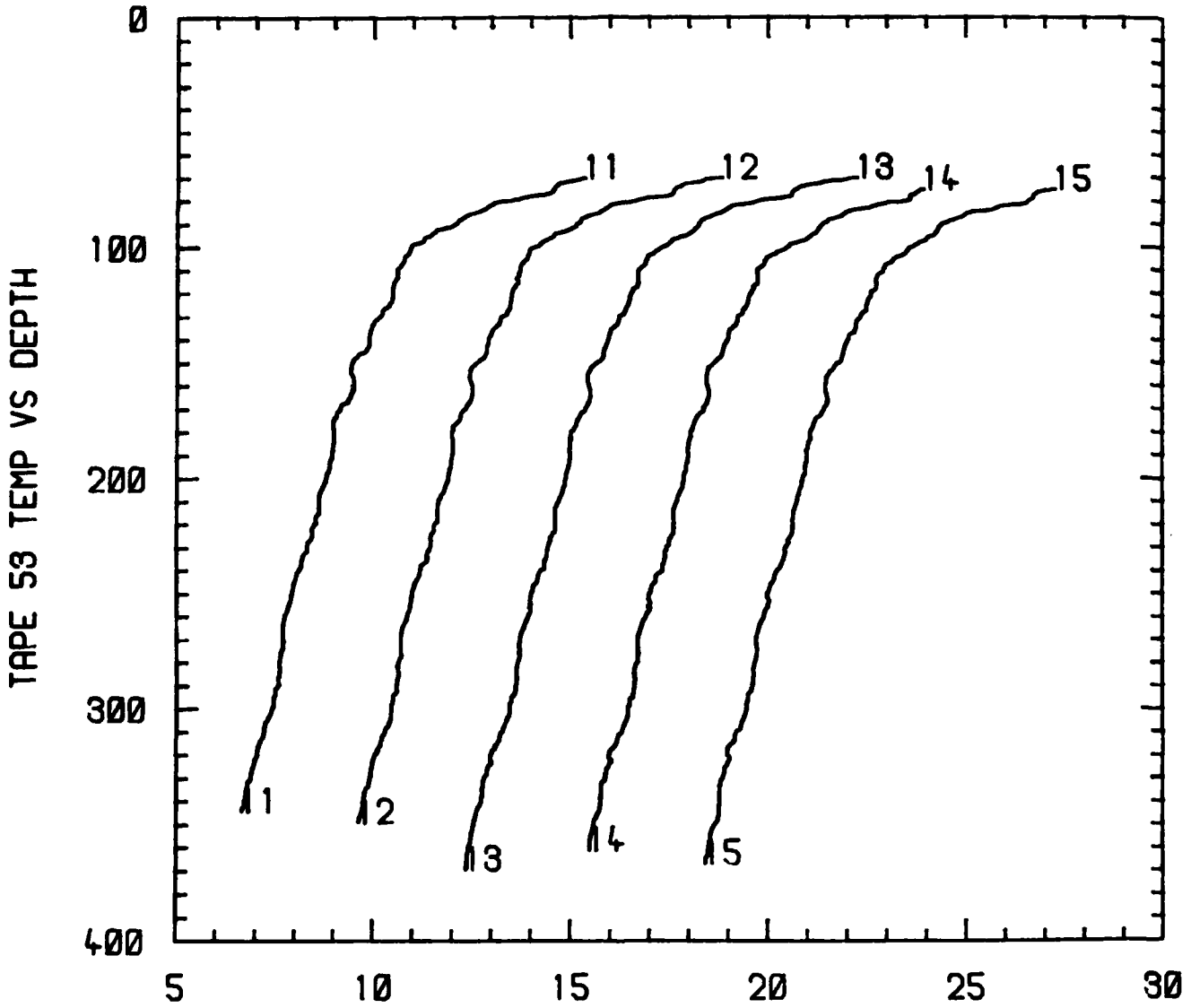

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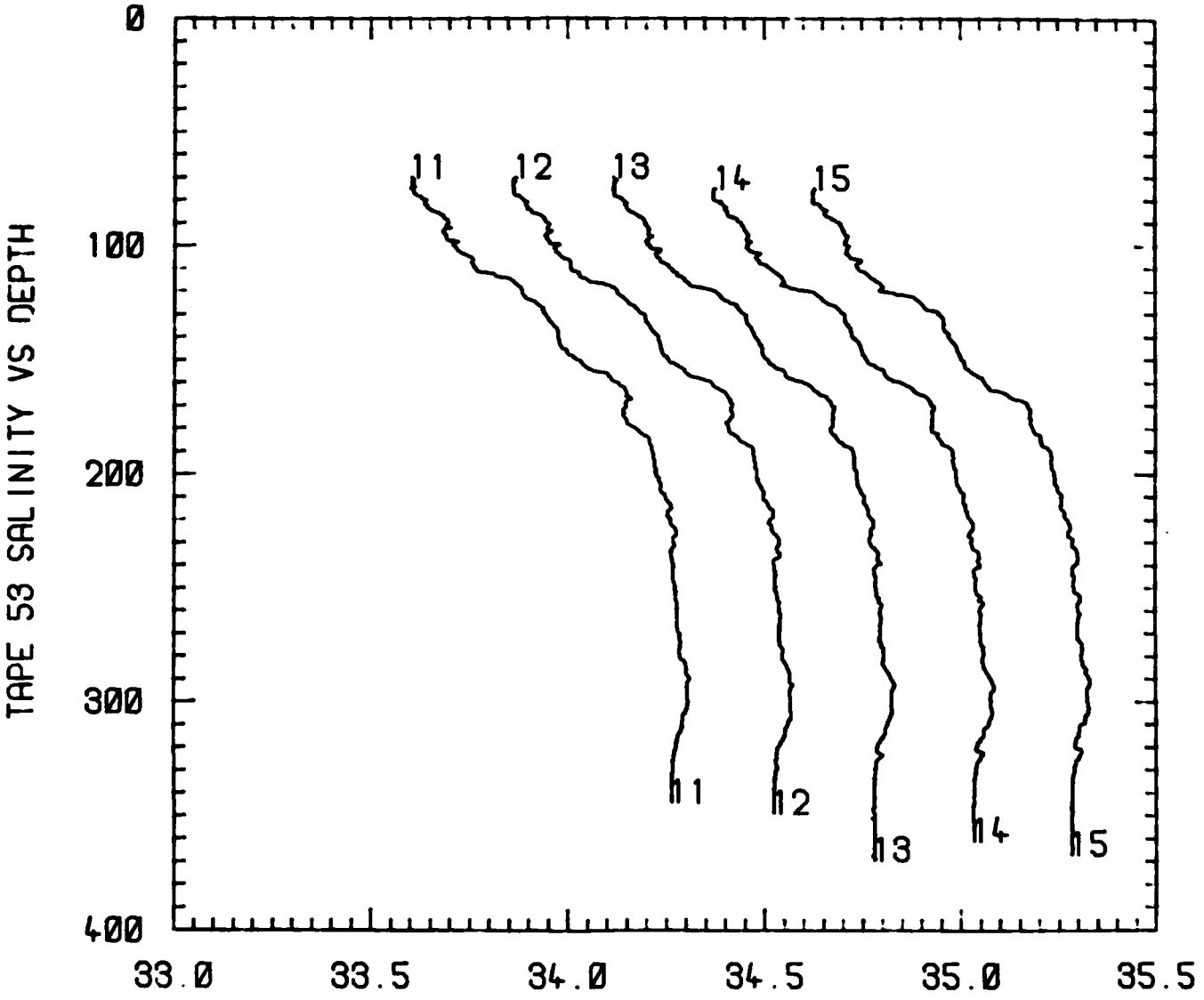

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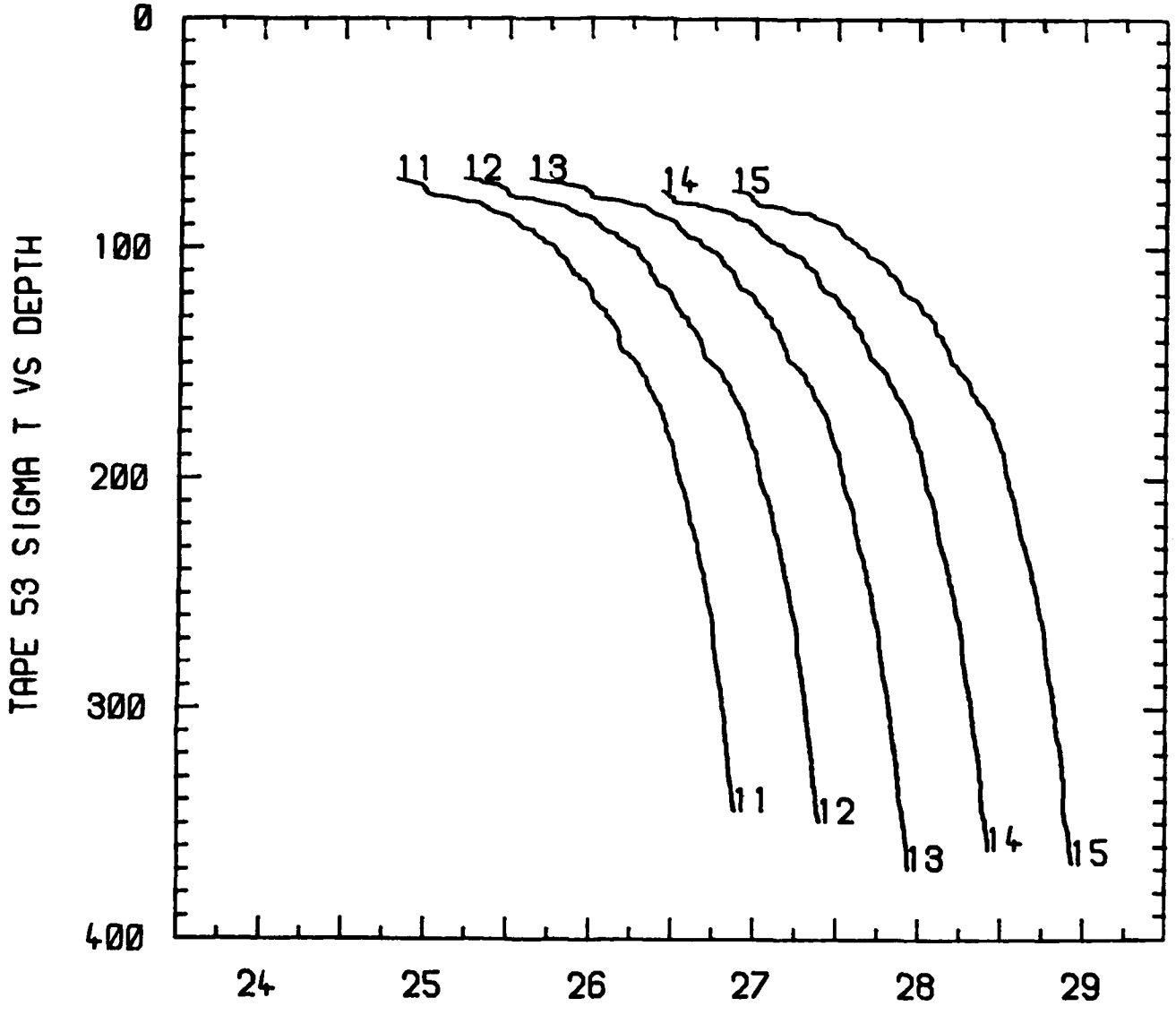

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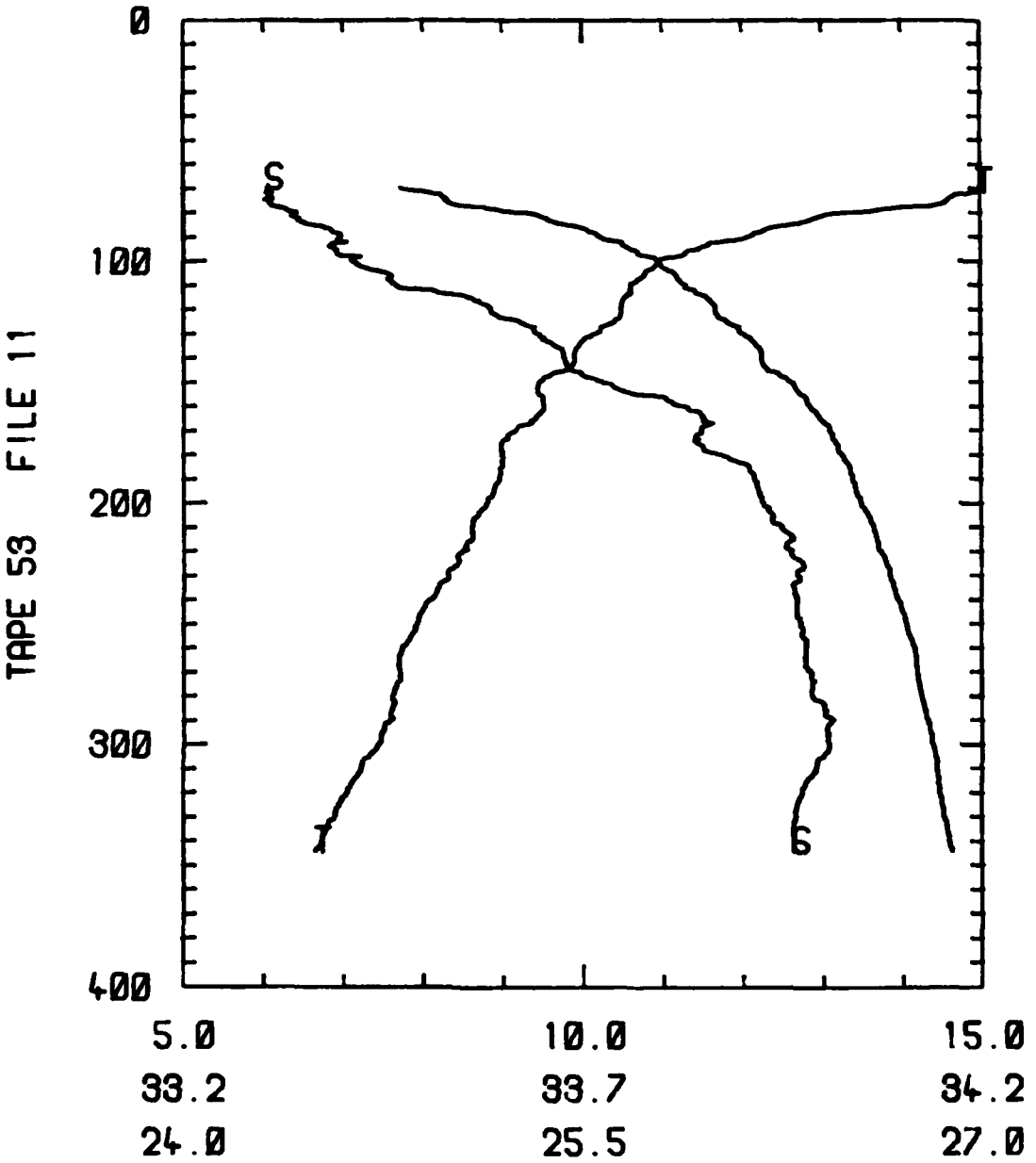

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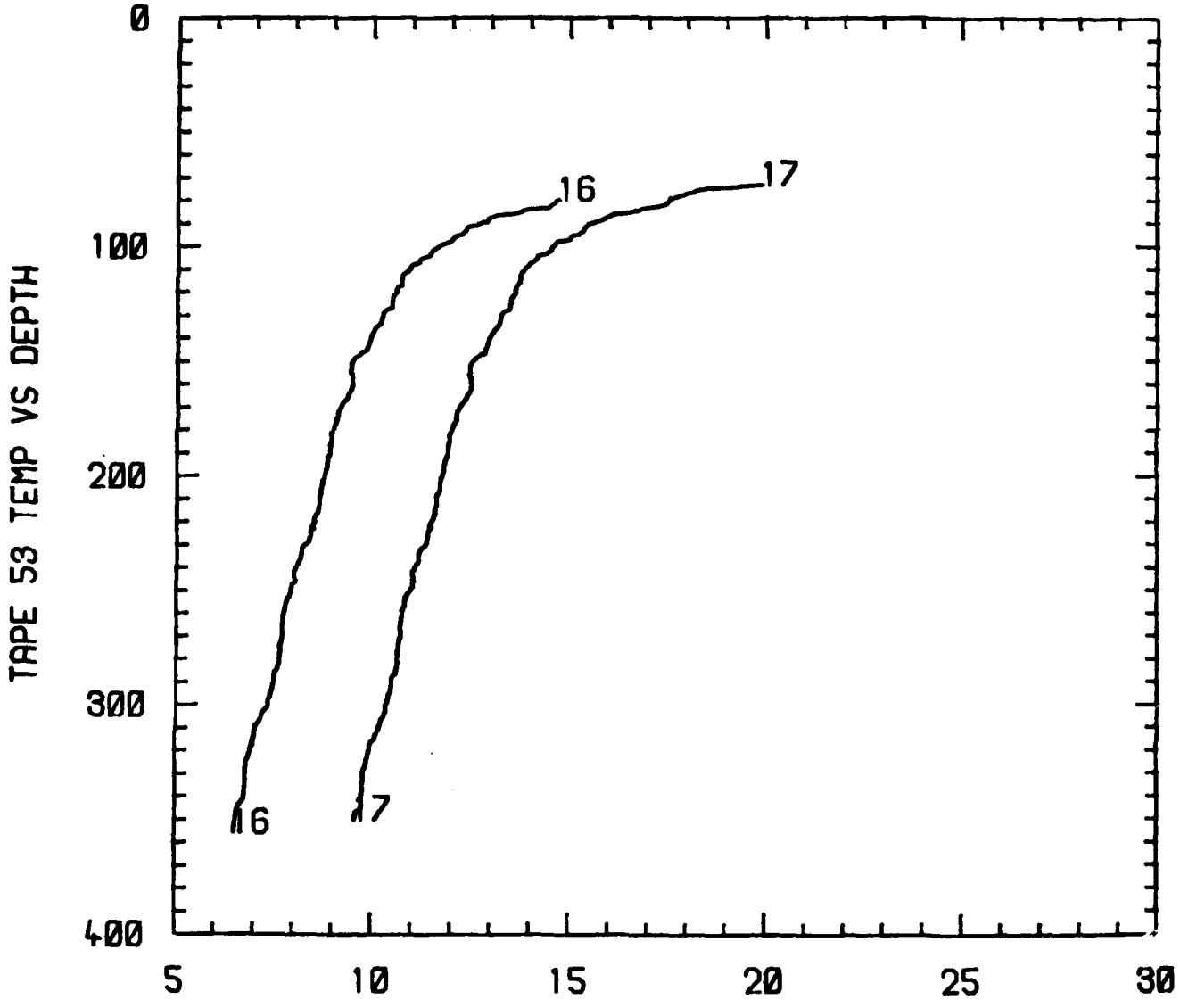

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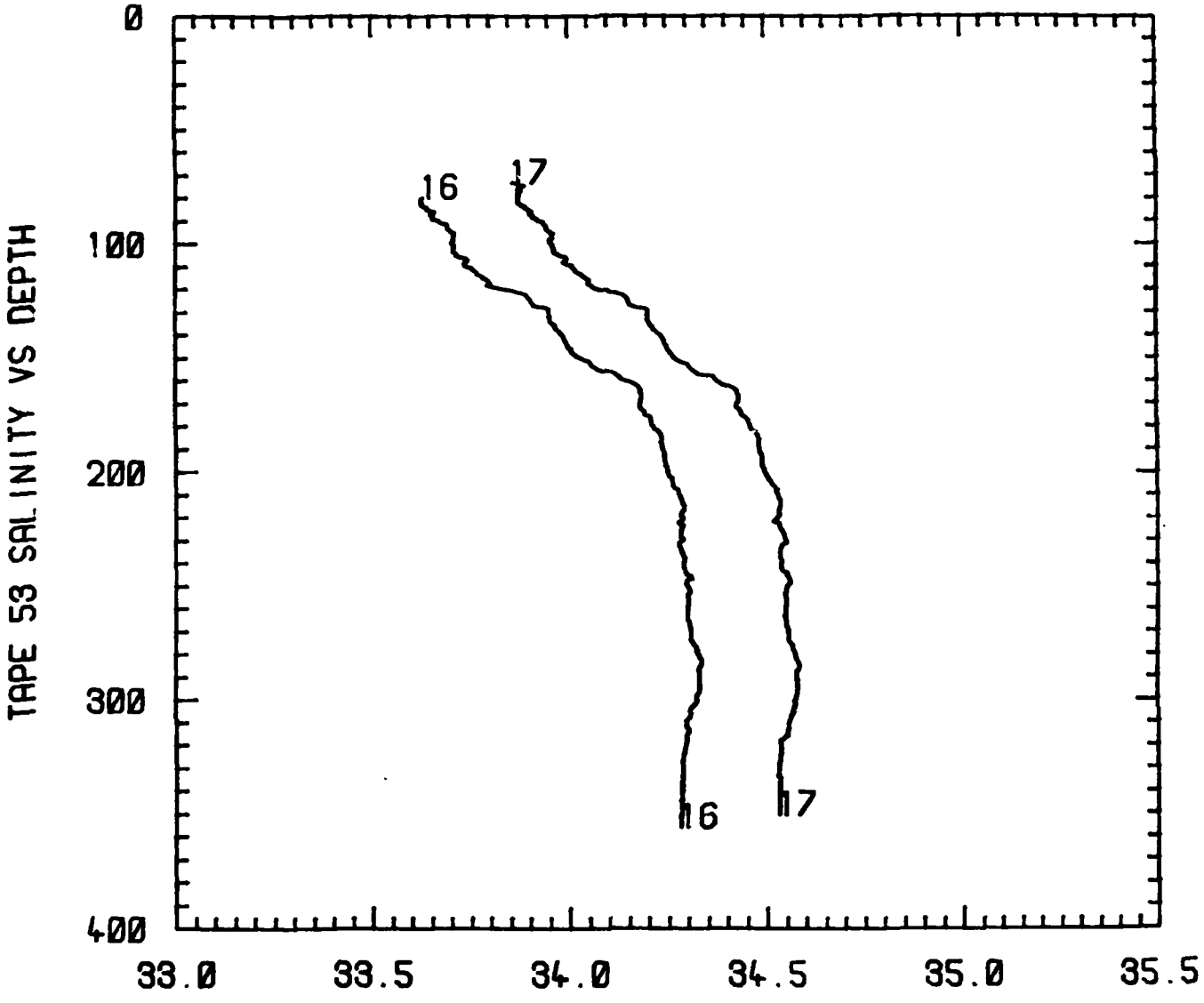

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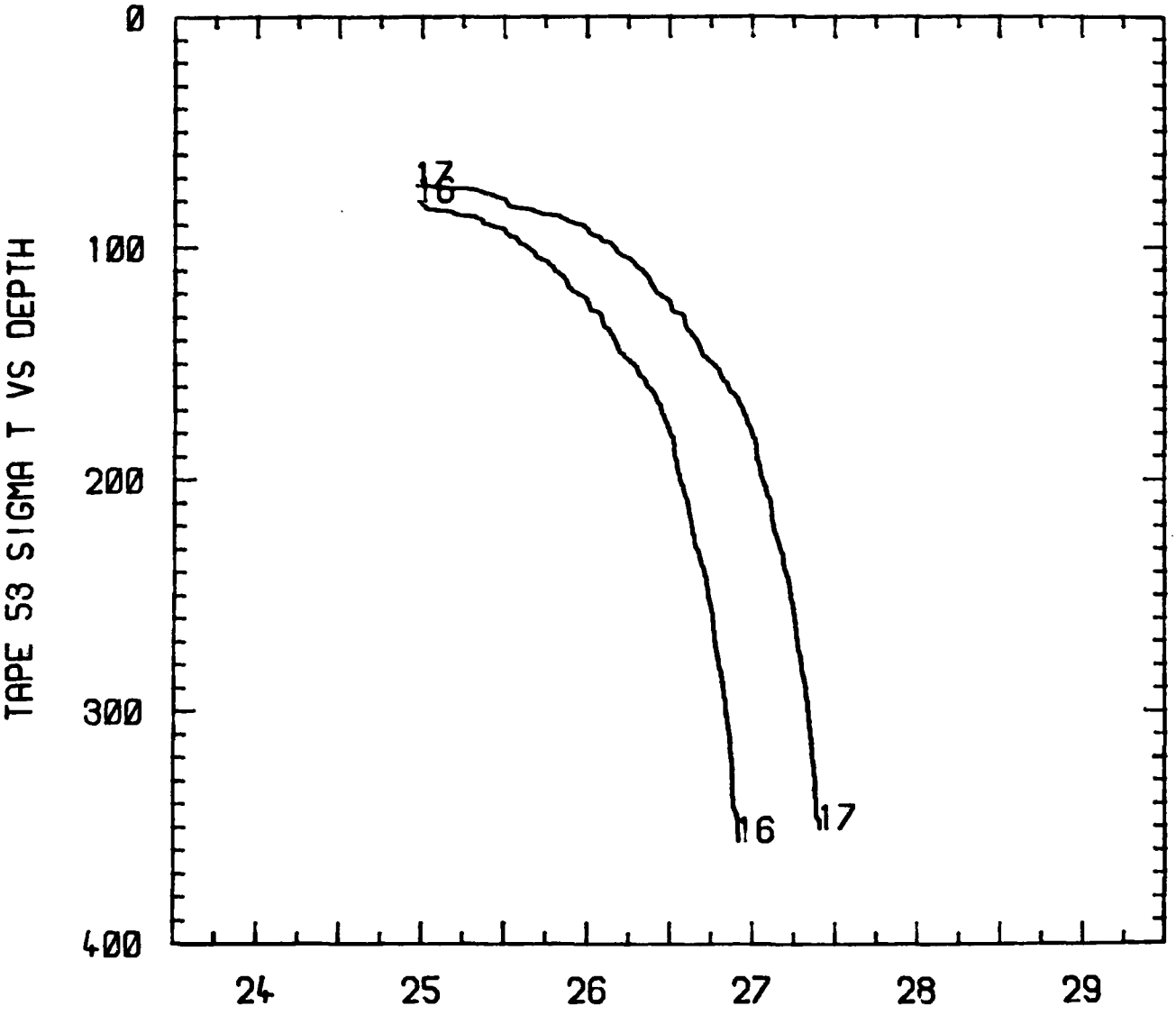

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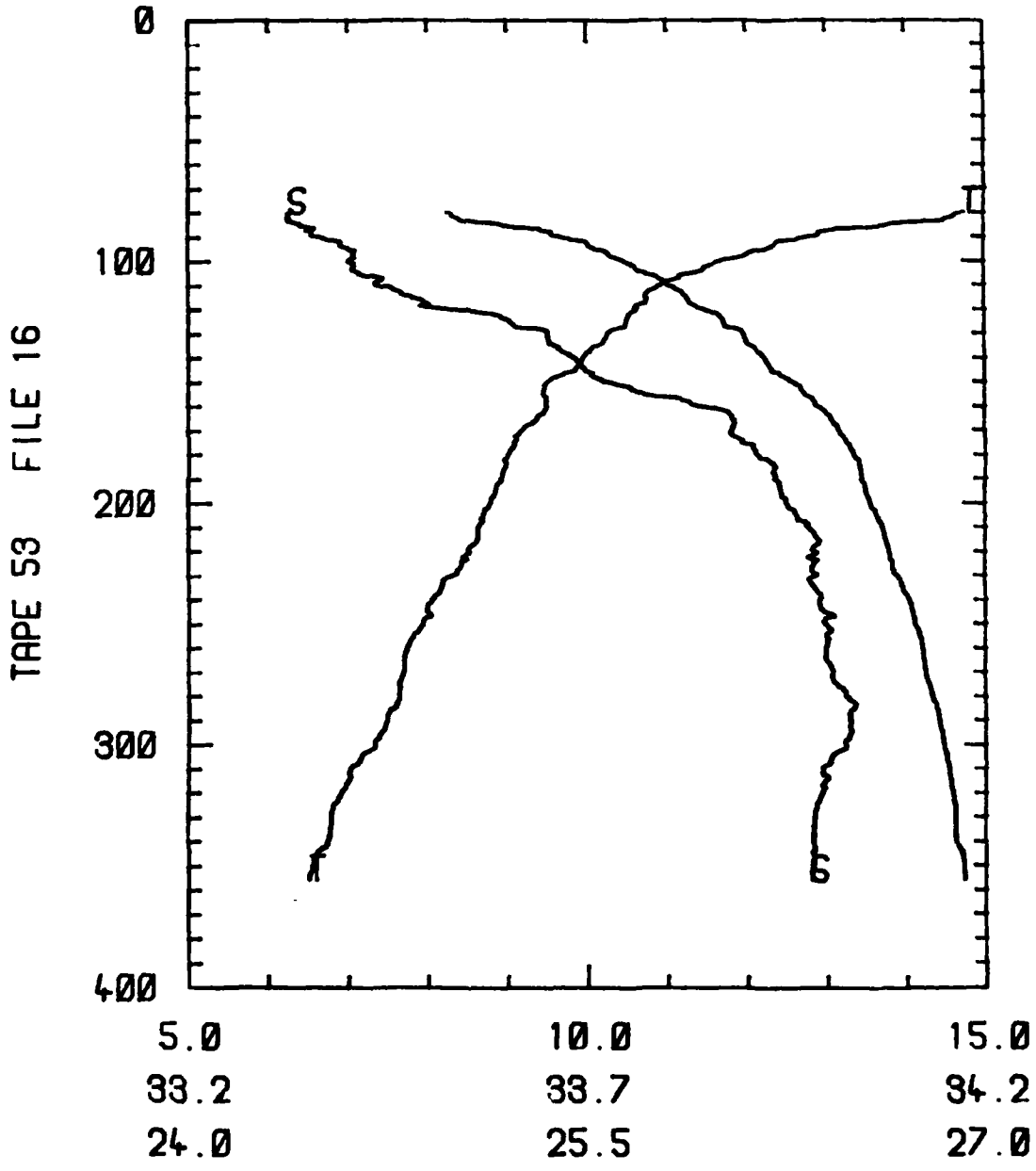

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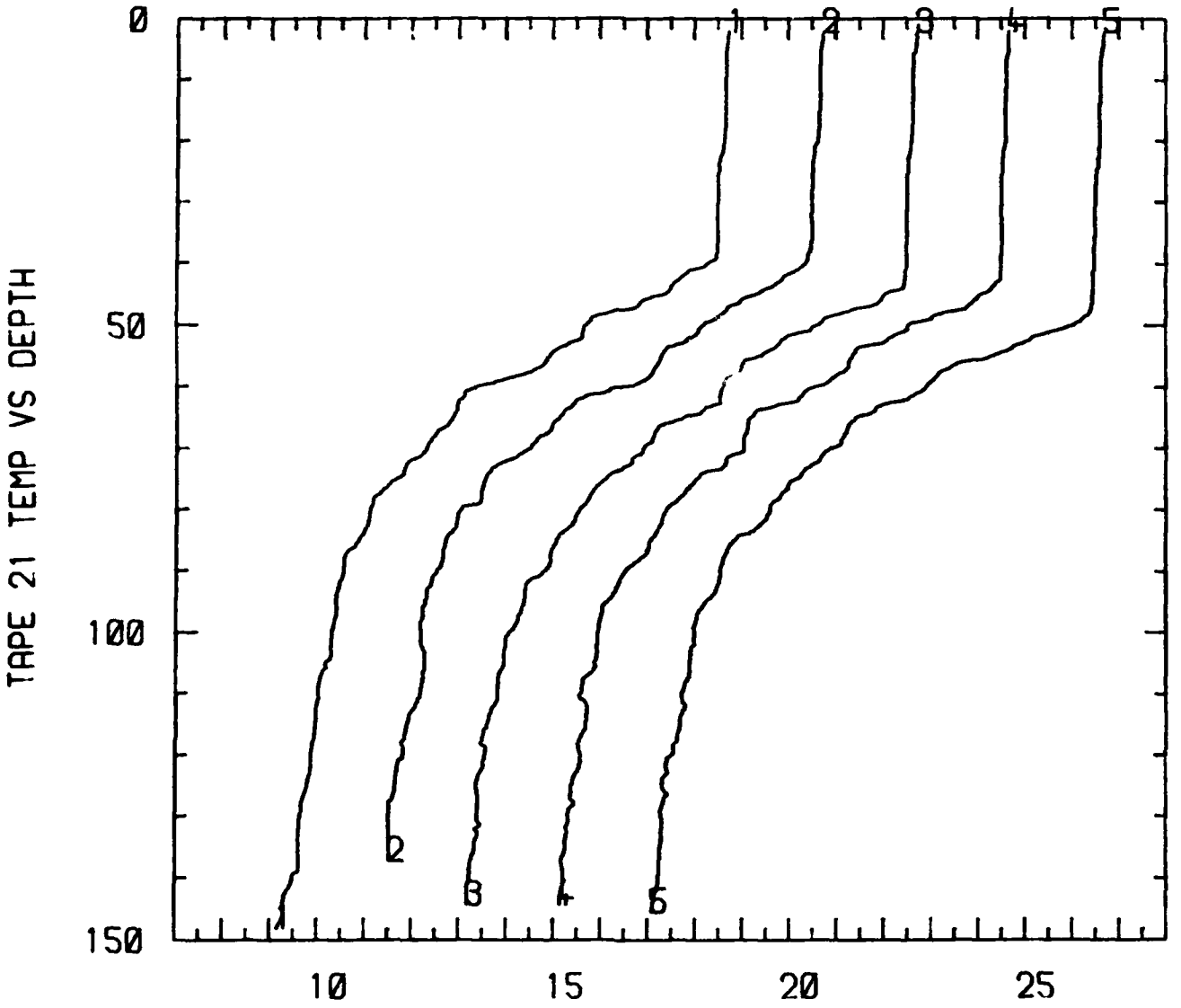

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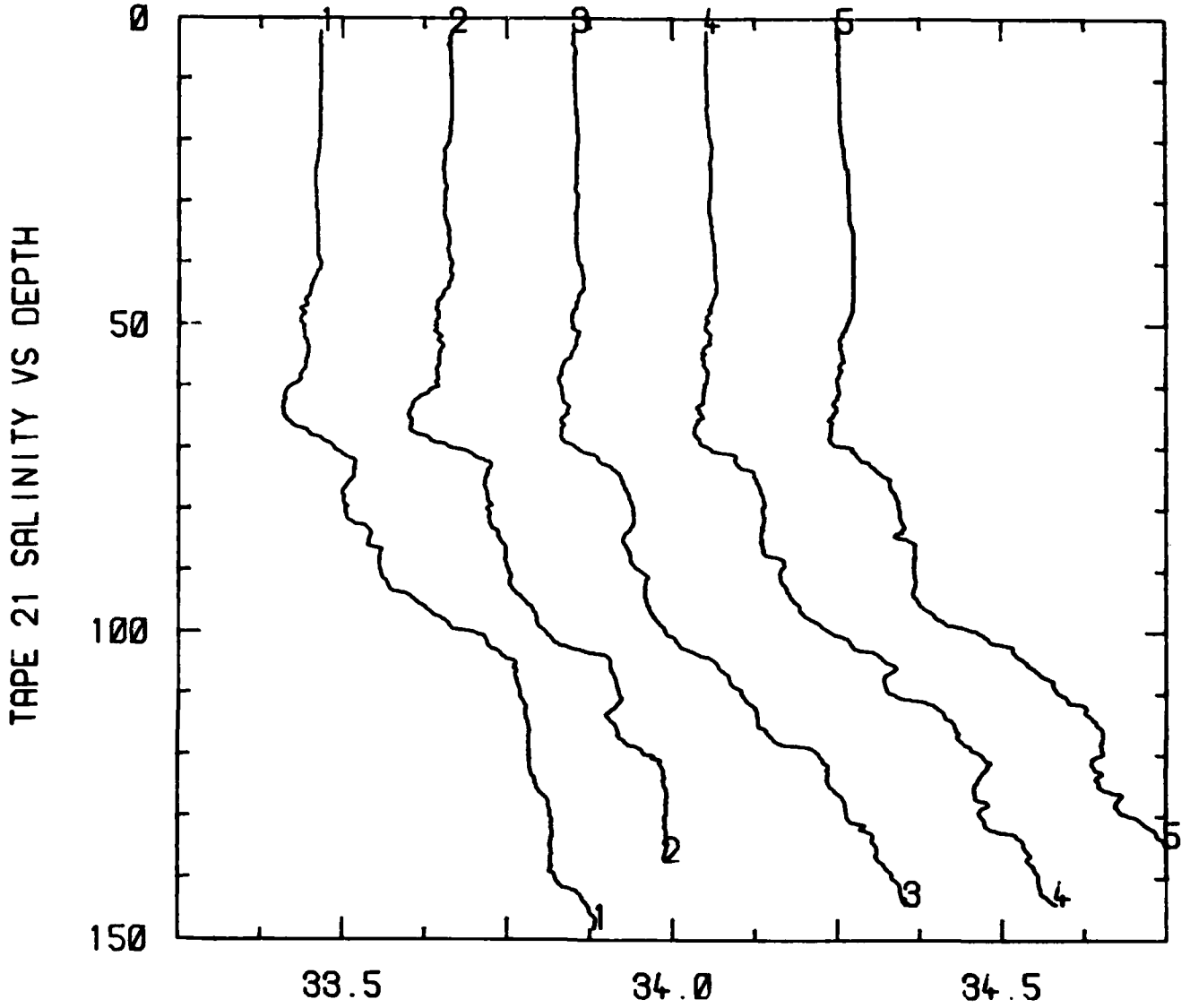

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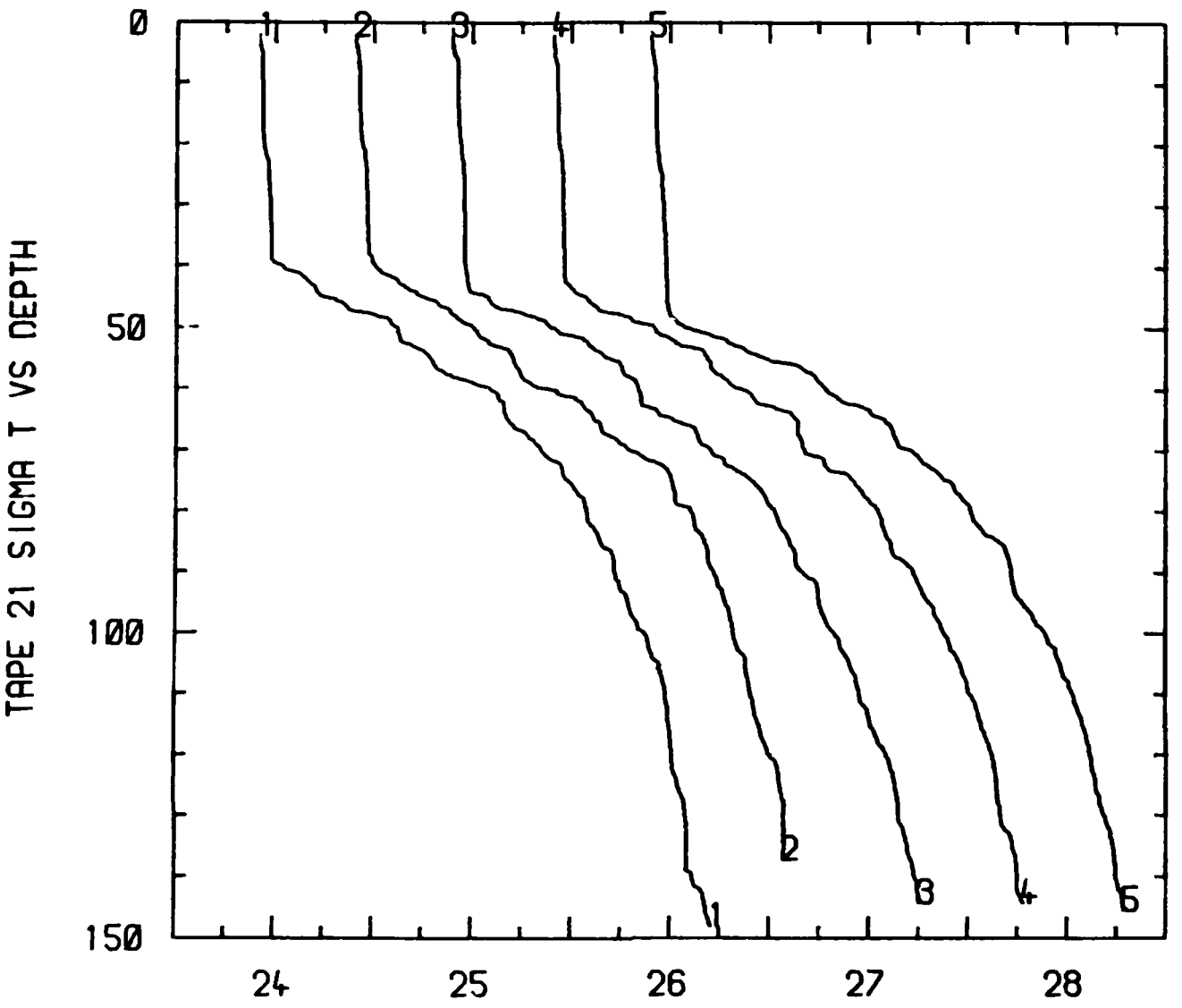

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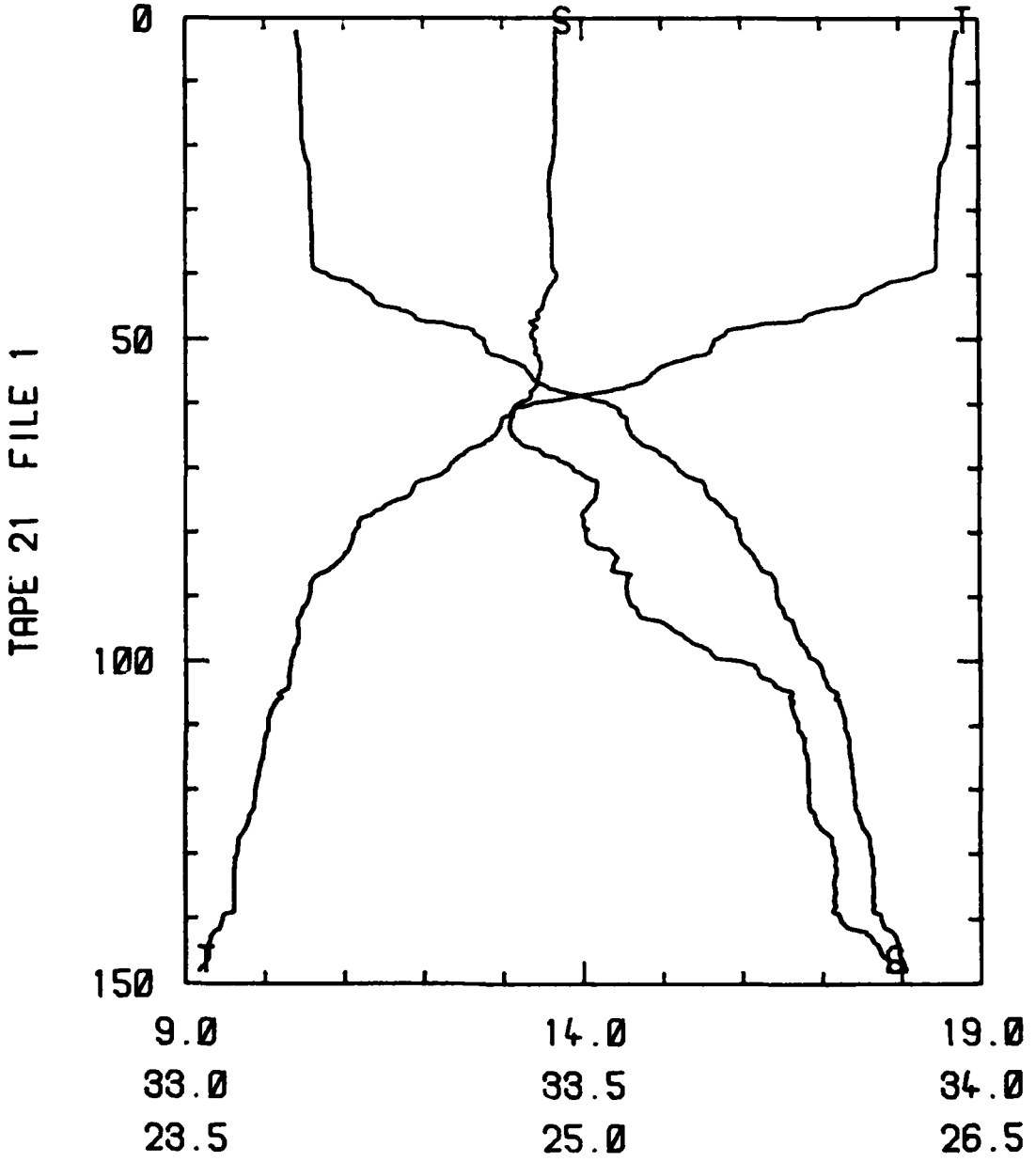

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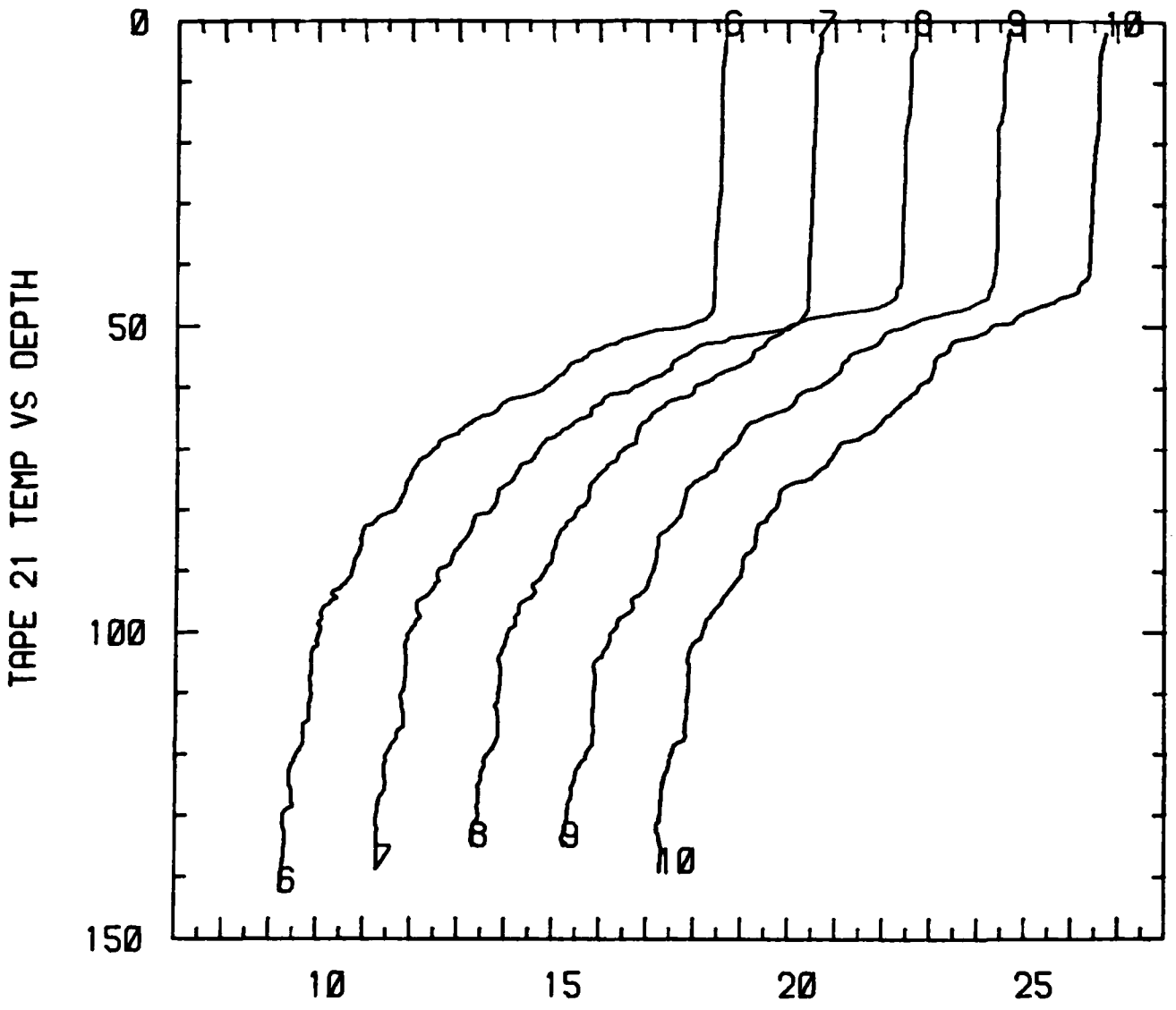

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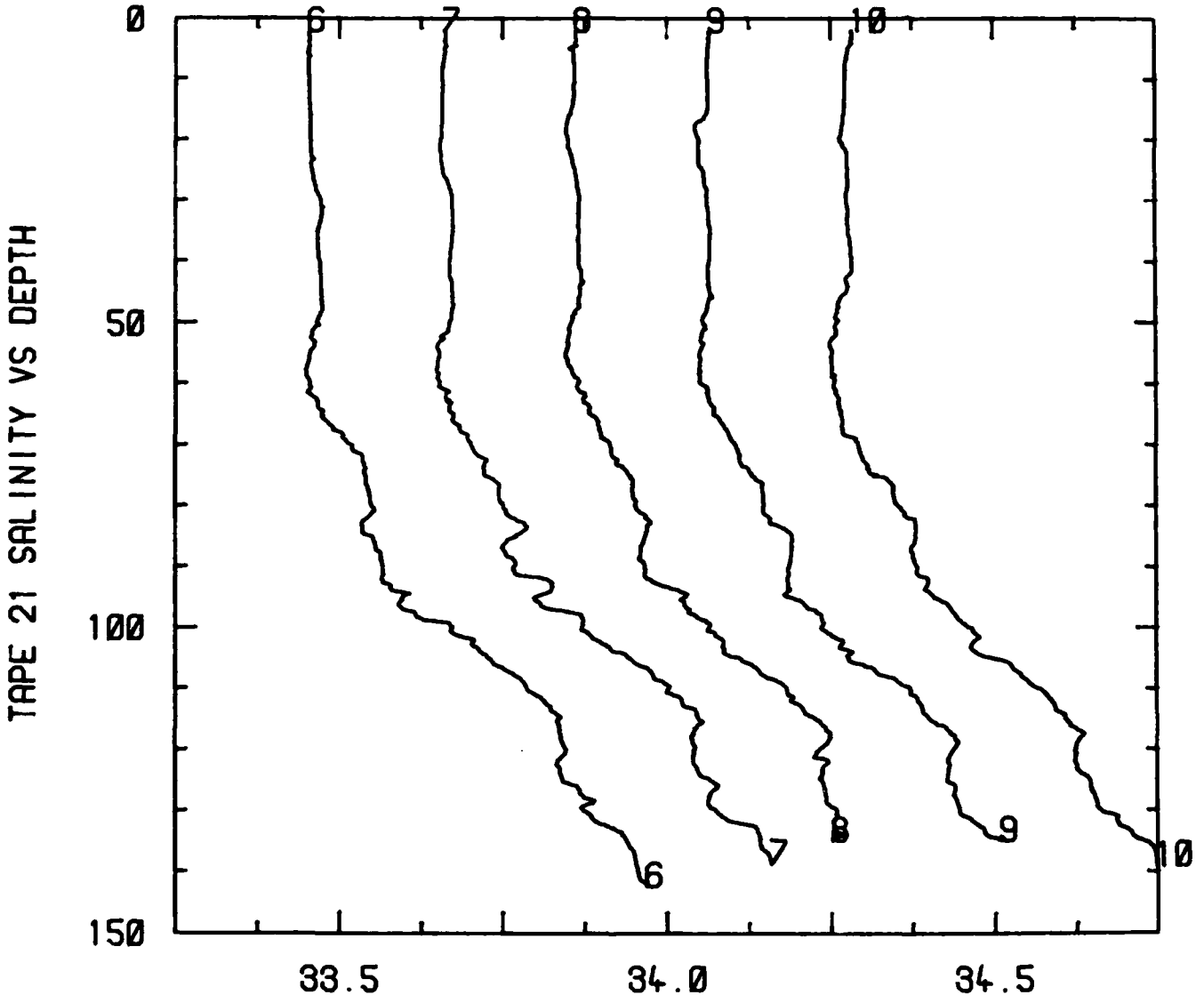
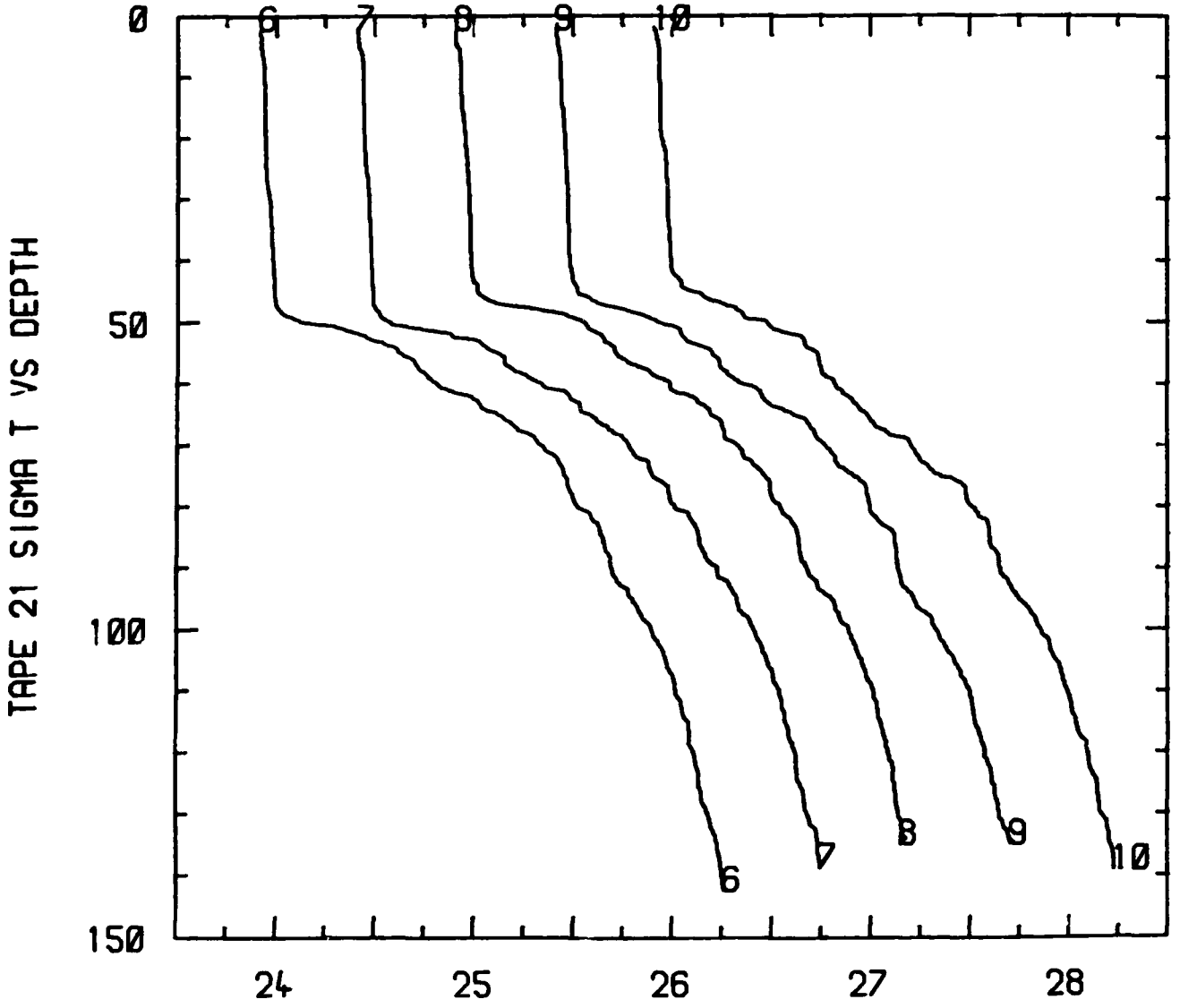


RSVP: UNIT 4 OCTOBER 27,1983 2106-2134 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

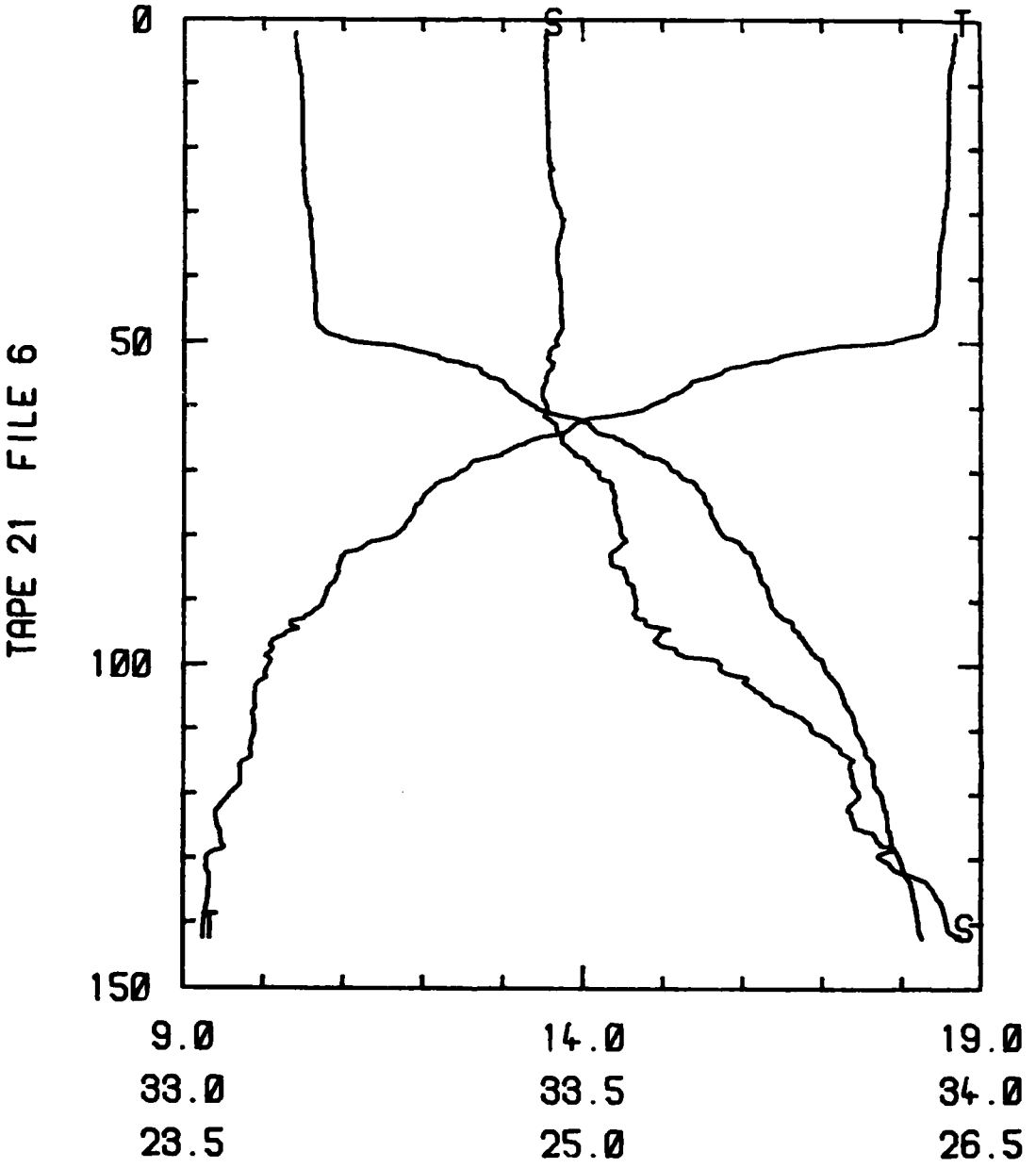
SHIP'S SPEED 3 KNOTS



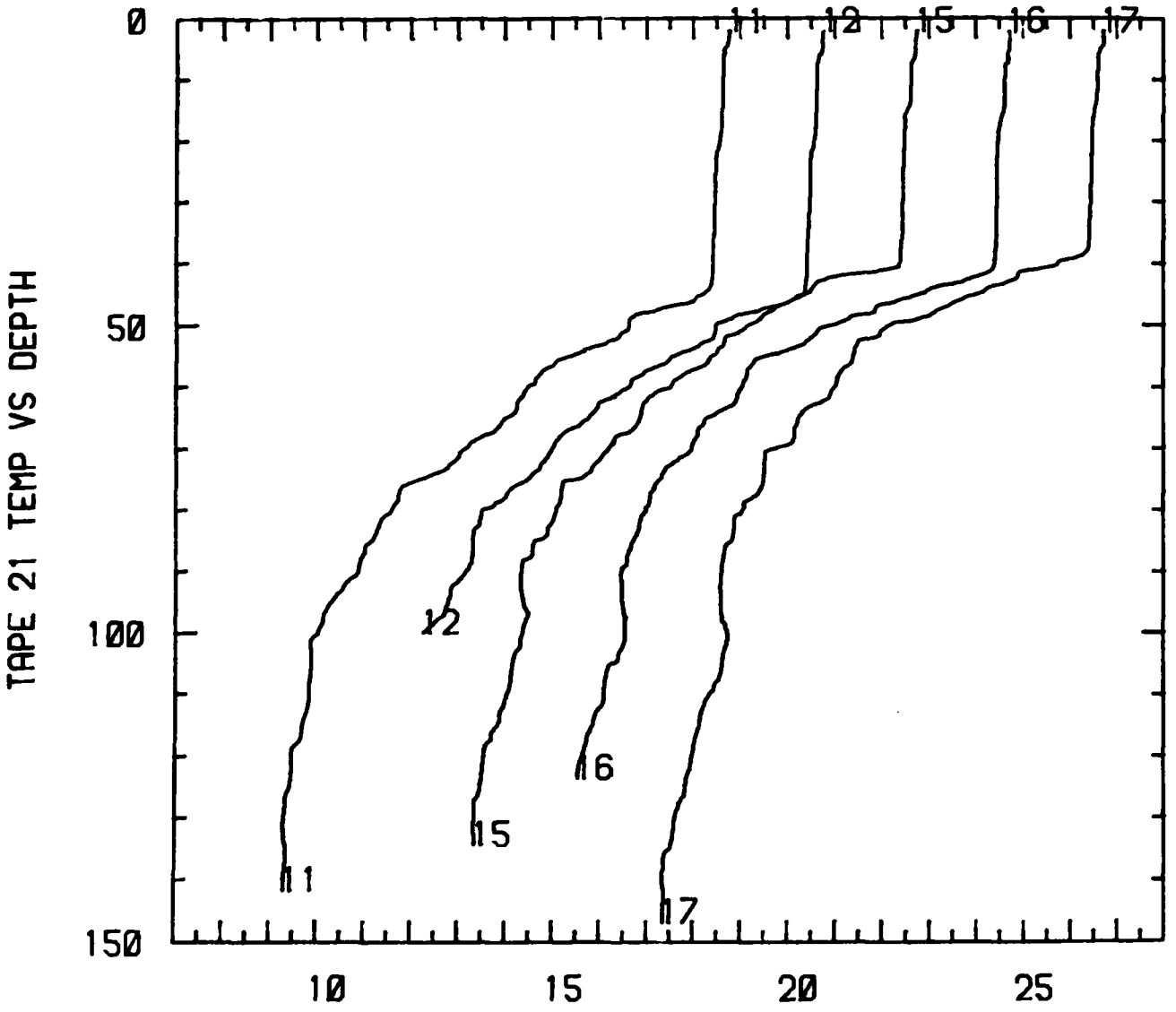
RSVP: UNIT 4 OCTOBER 27, 1983 2106-2134 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 3 KNOTS



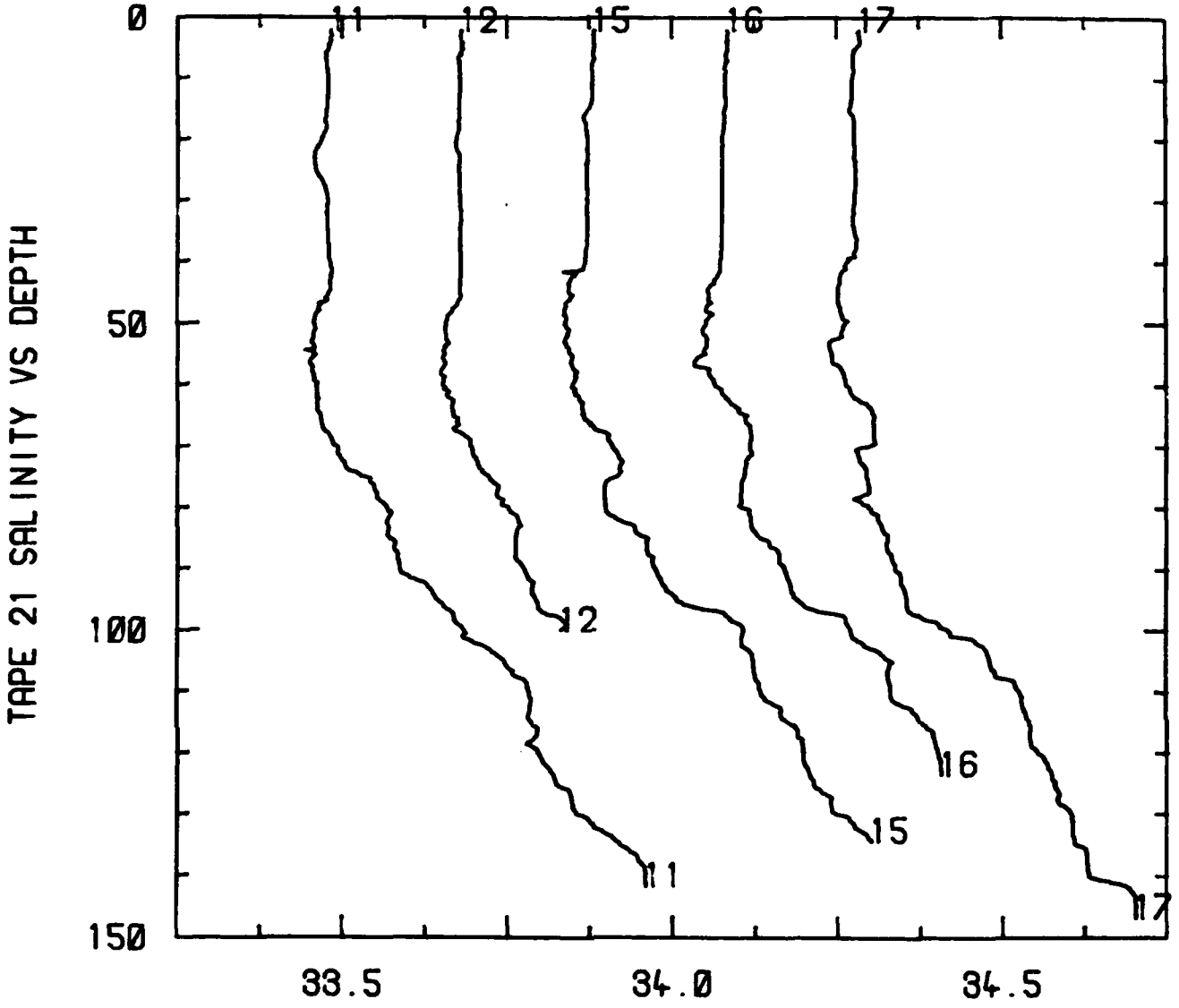
RSVP: UNIT 4 OCTOBER 27, 1983 2106 GMT



RSVP: UNIT 4 OCTOBER 27, 1983 2136-2234 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

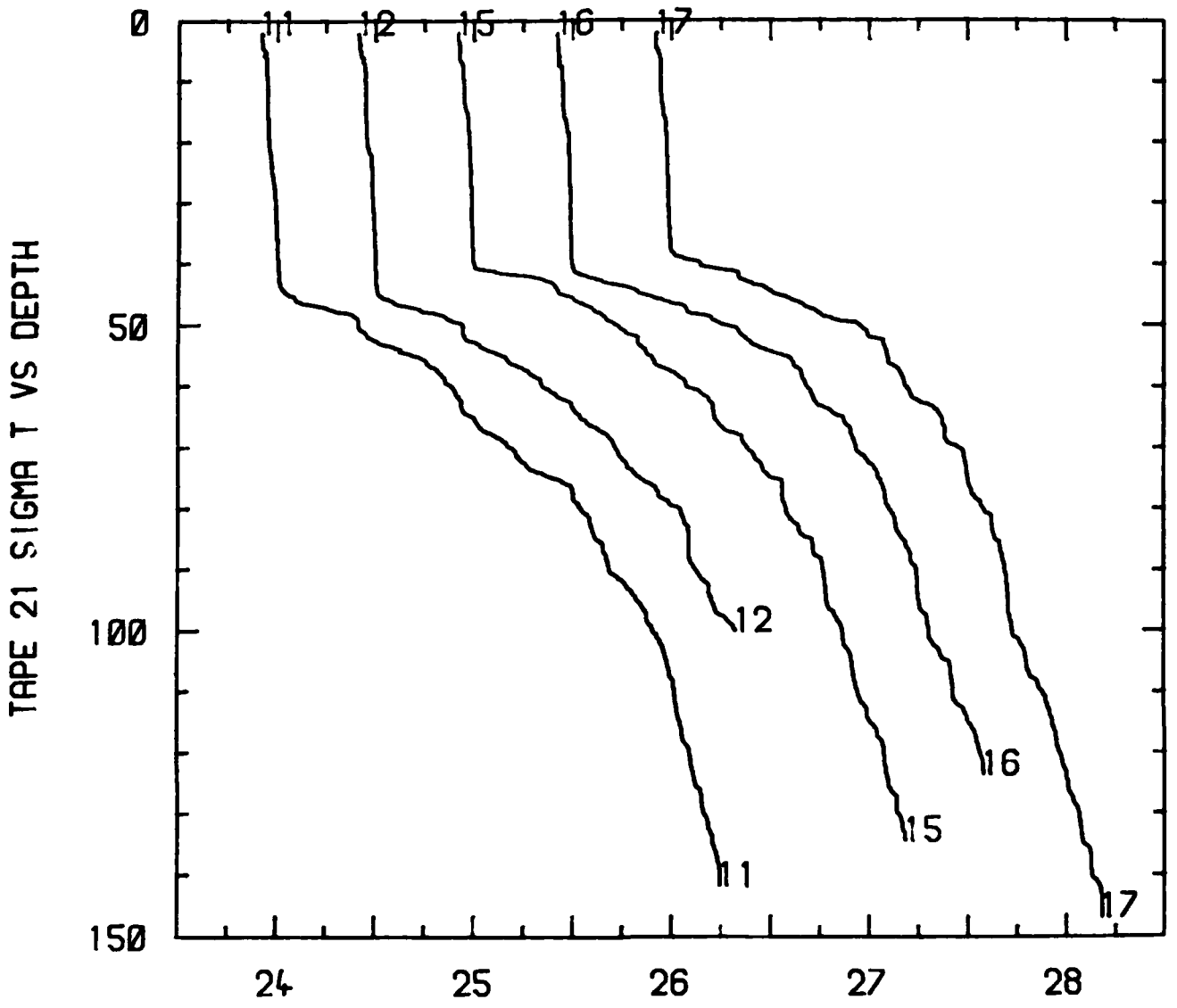
SHIP'S SPEED 5.2 KNOTS



RSVP: UNIT 4 OCTOBER 27, 1983 2136-2234 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

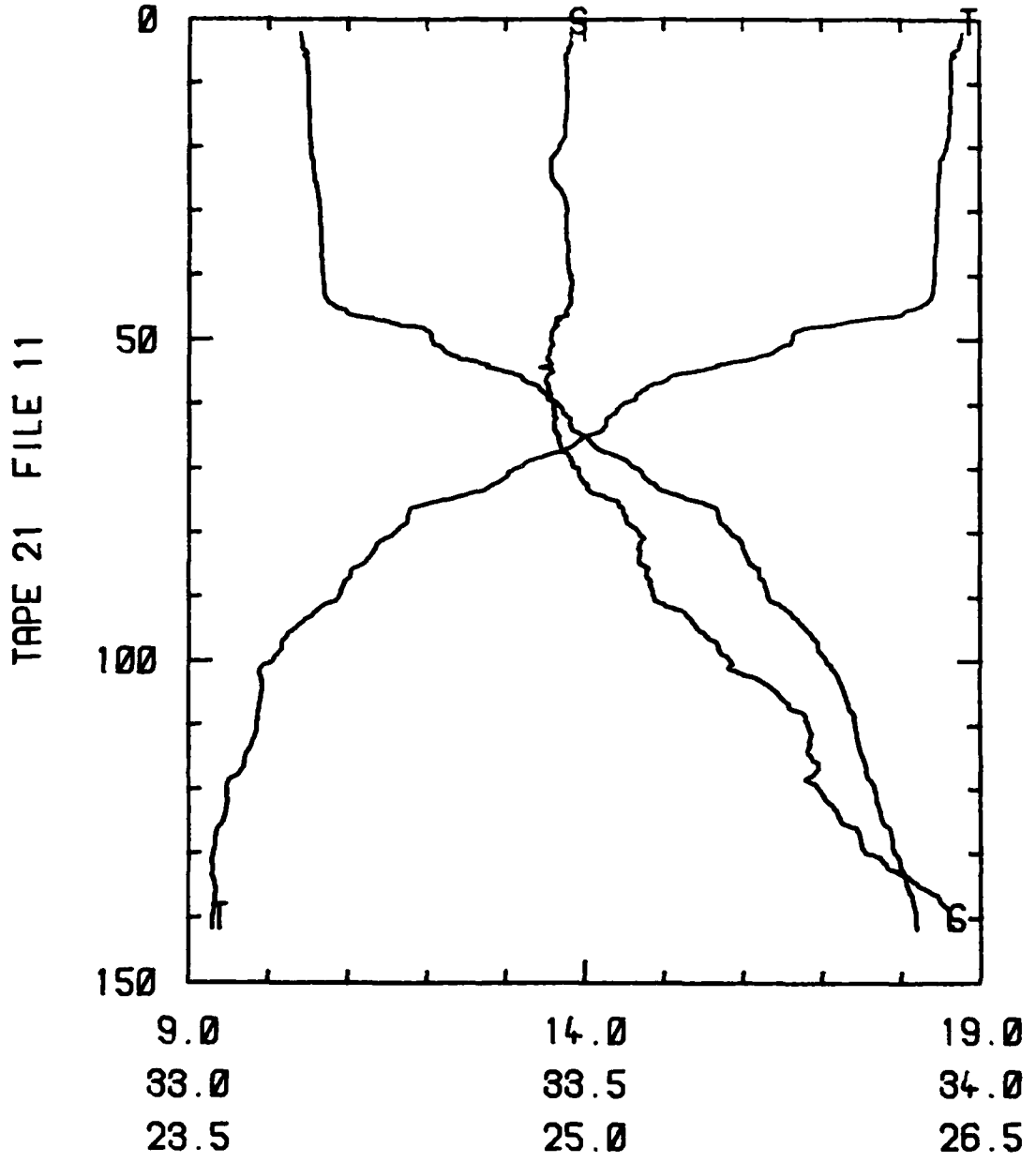
SHIP'S SPEED 5.2 KNOTS



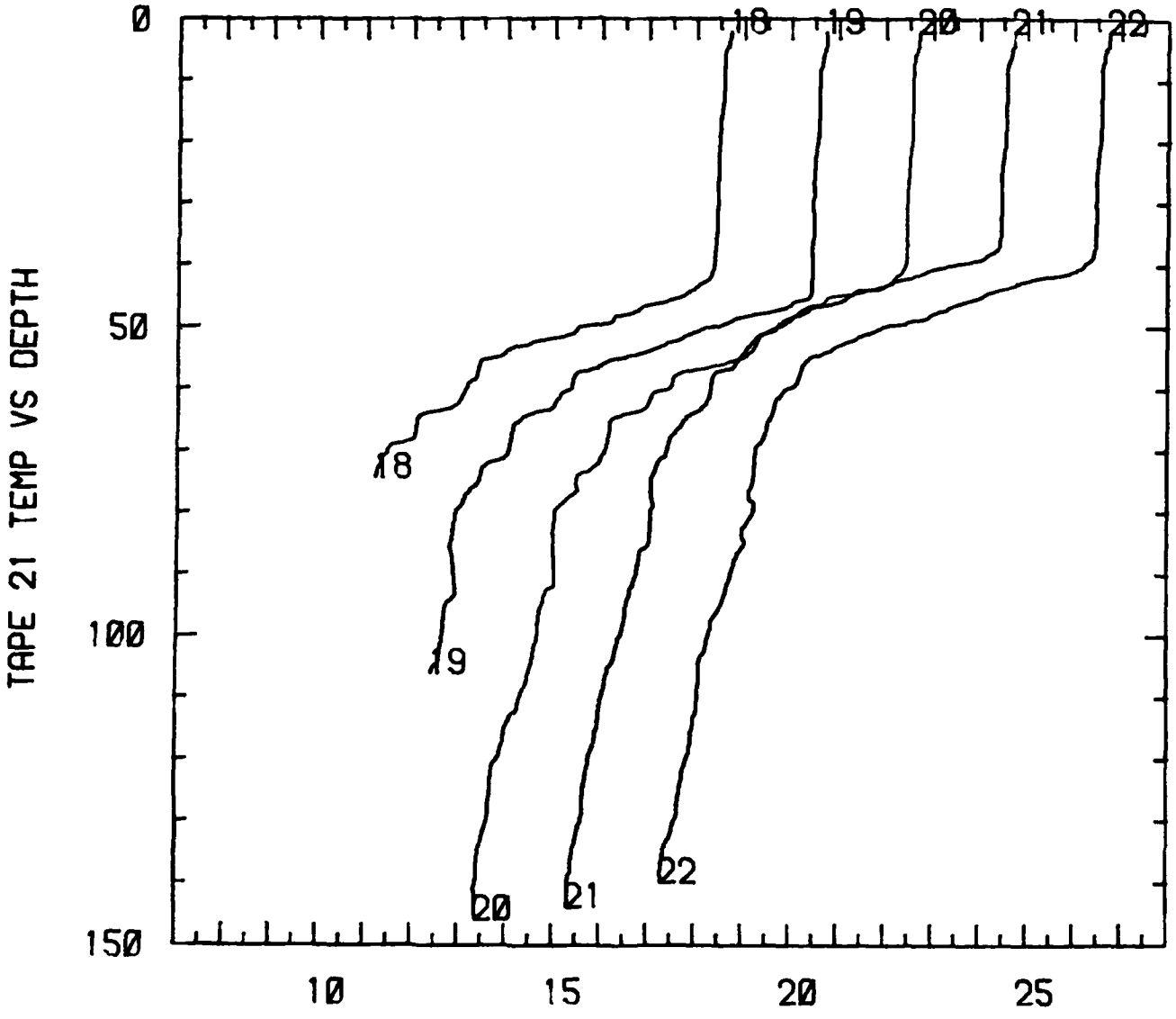
RSVP: UNIT 4 OCTOBER 27, 1983 2136-2234 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 5.2 KNOTS



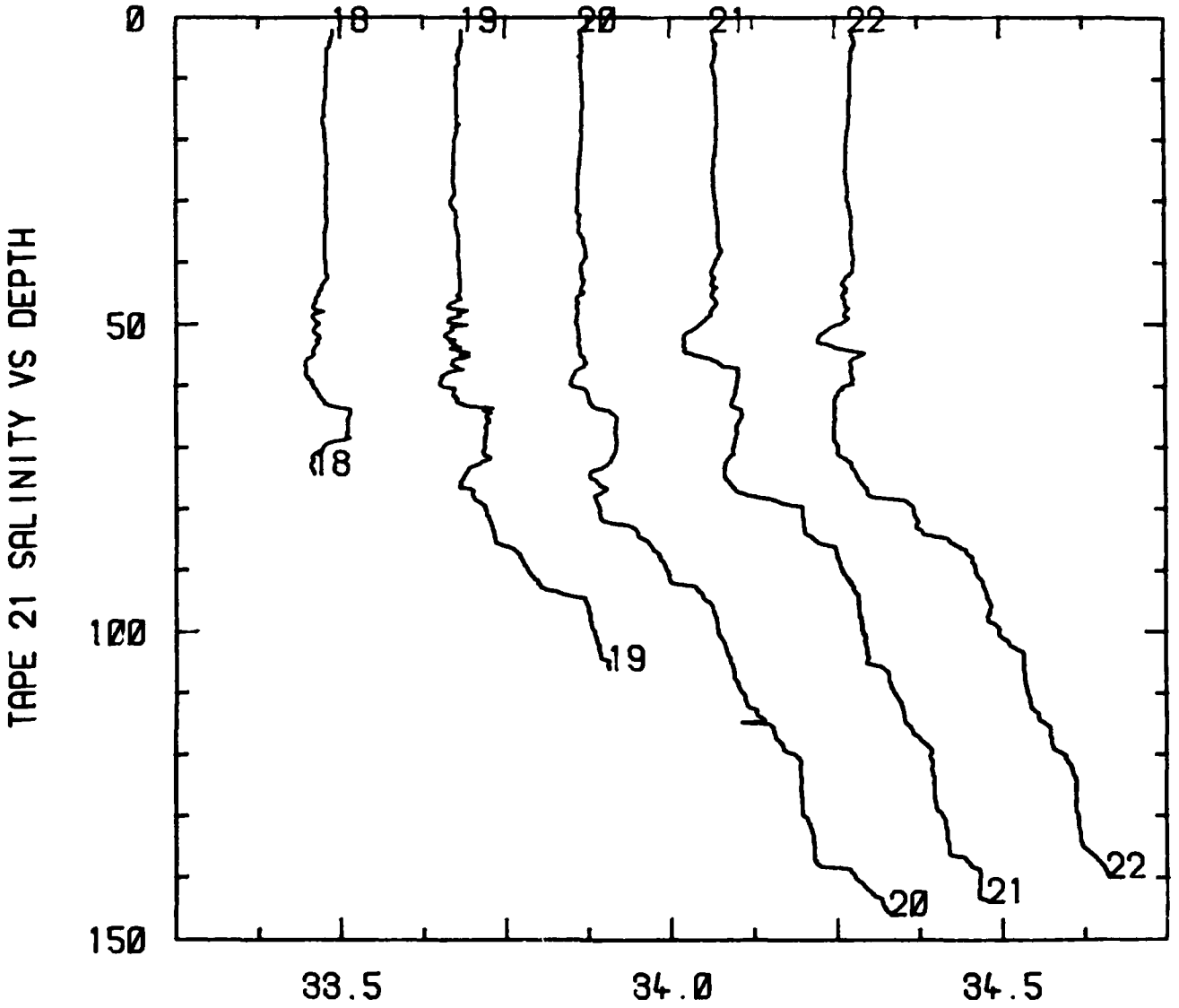
RSVP: UNIT 4 OCTOBER 27, 1983 2136 GMT



RSVP: UNIT 4 OCTOBER 27, 1983 2237-2308 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

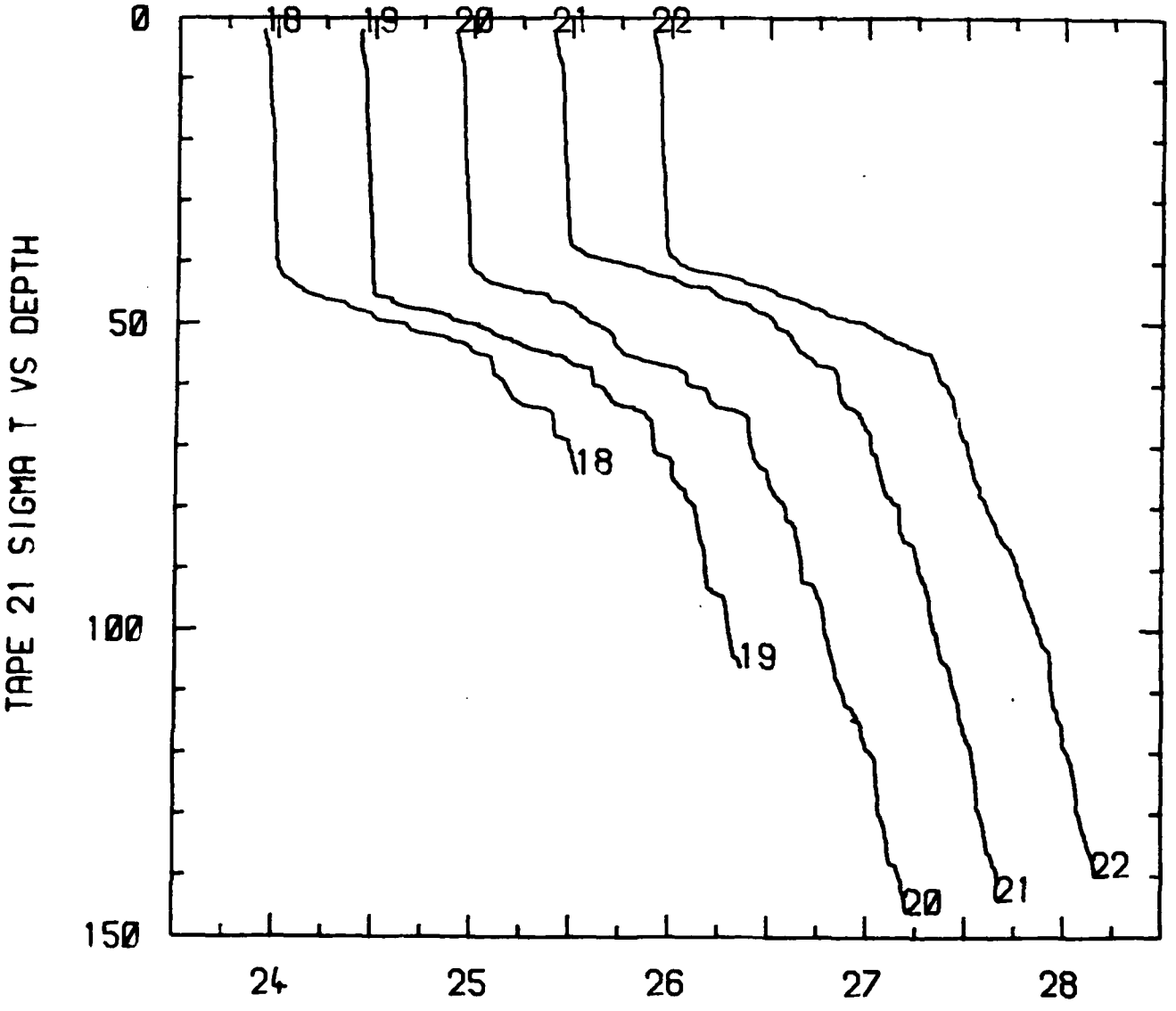
SHIP'S SPEED 5.2 KNOTS



RSVP: UNIT 4 OCTOBER 27, 1983 2237-2308 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

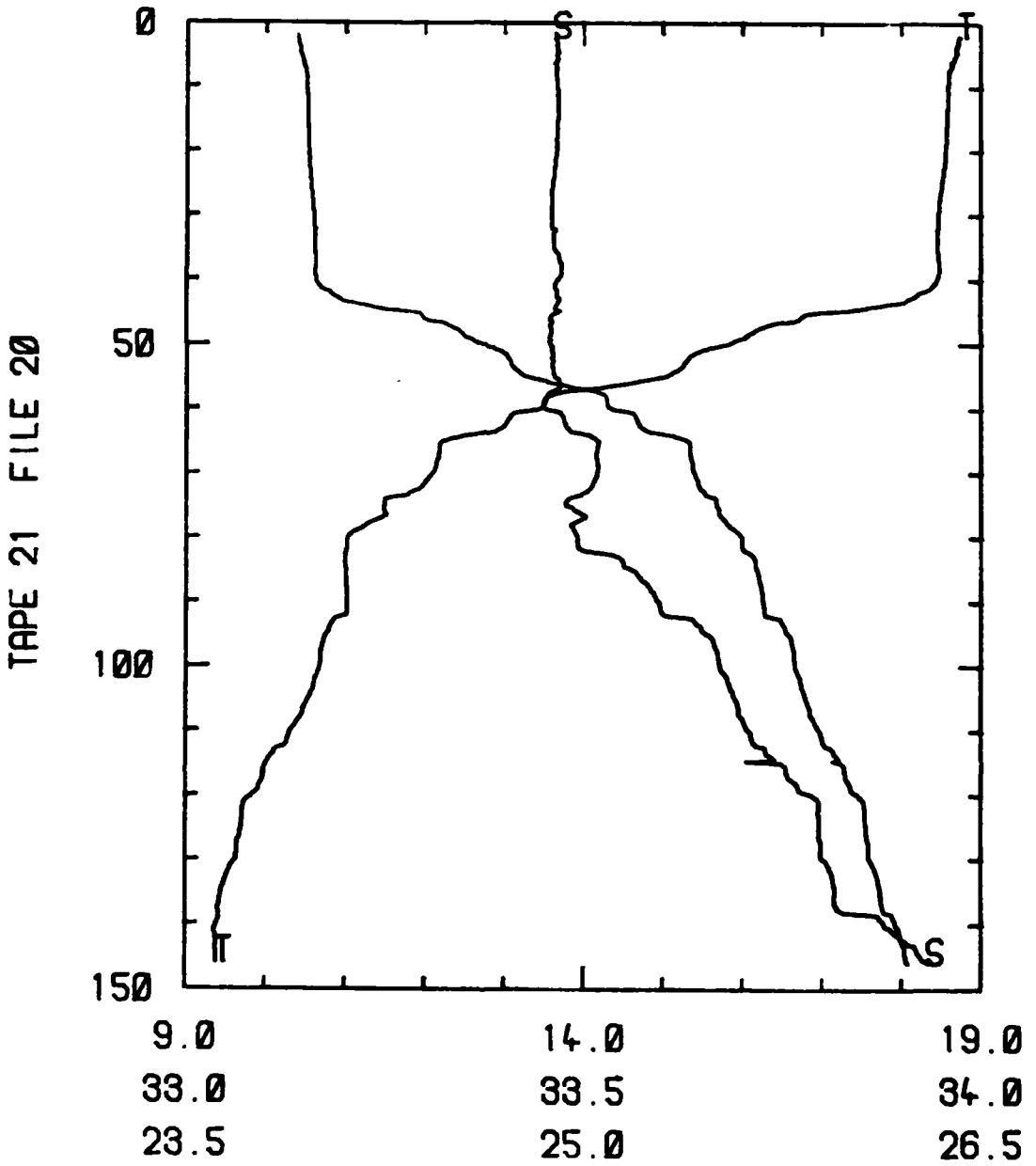
SHIP'S SPEED 5.2 KNOTS



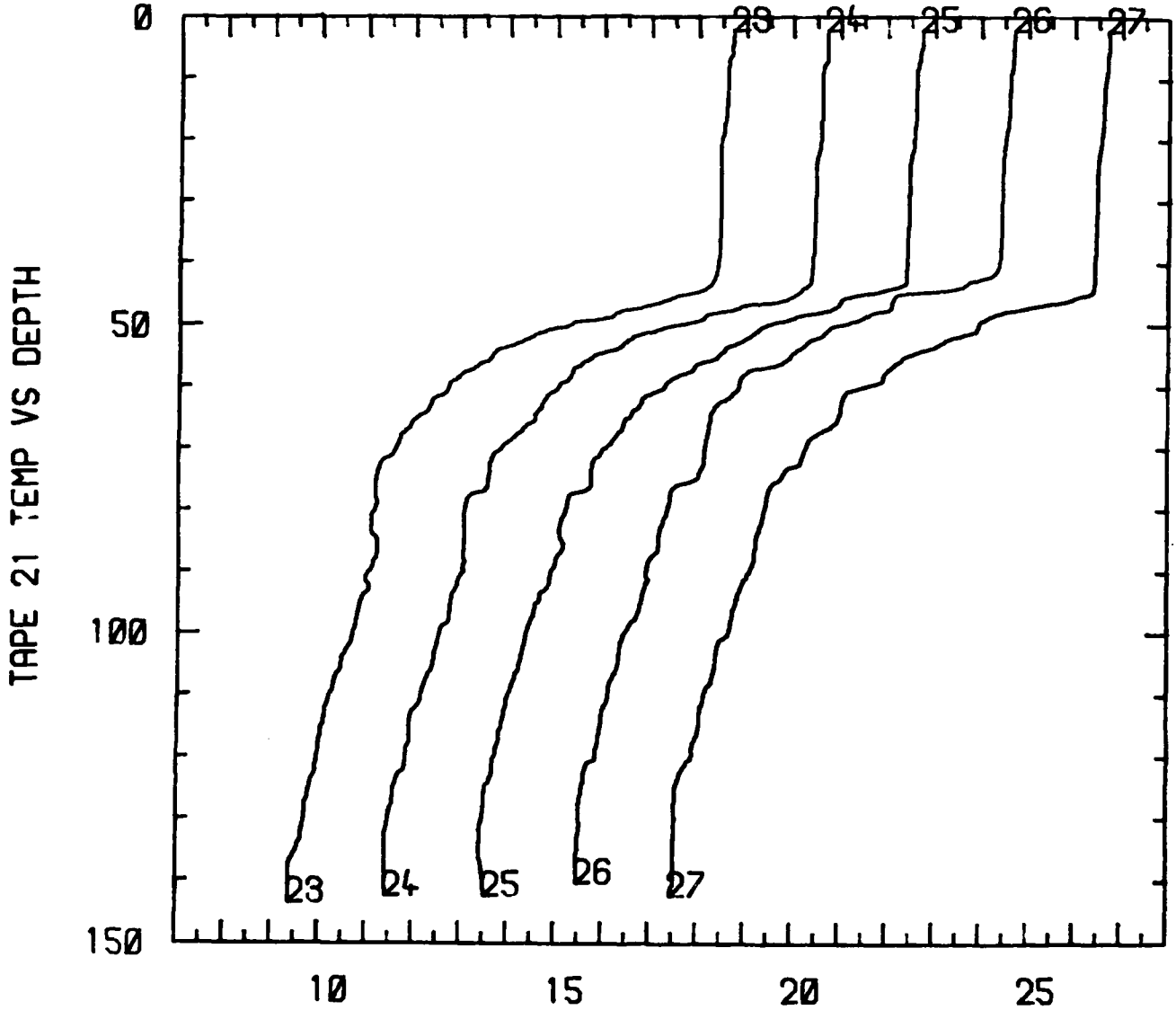
RSVP: UNIT 4 OCTOBER 27, 1983 2237-2308 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 5.2 KNOTS



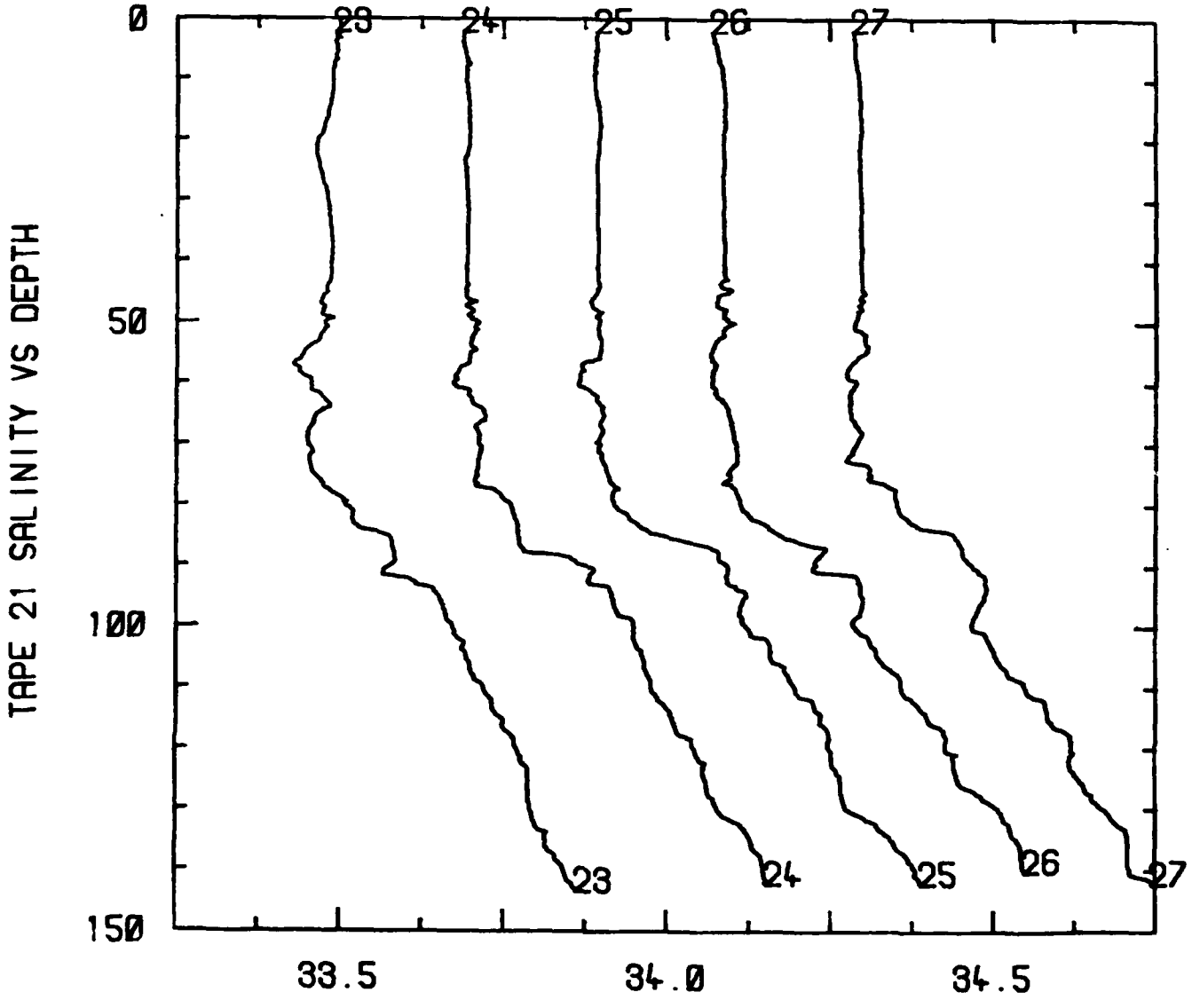
RSVP: UNIT 4 OCTOBER 27, 1983 2250 GMT



RSVP: UNIT 4 OCTOBER 27, 1983 2312-2354 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

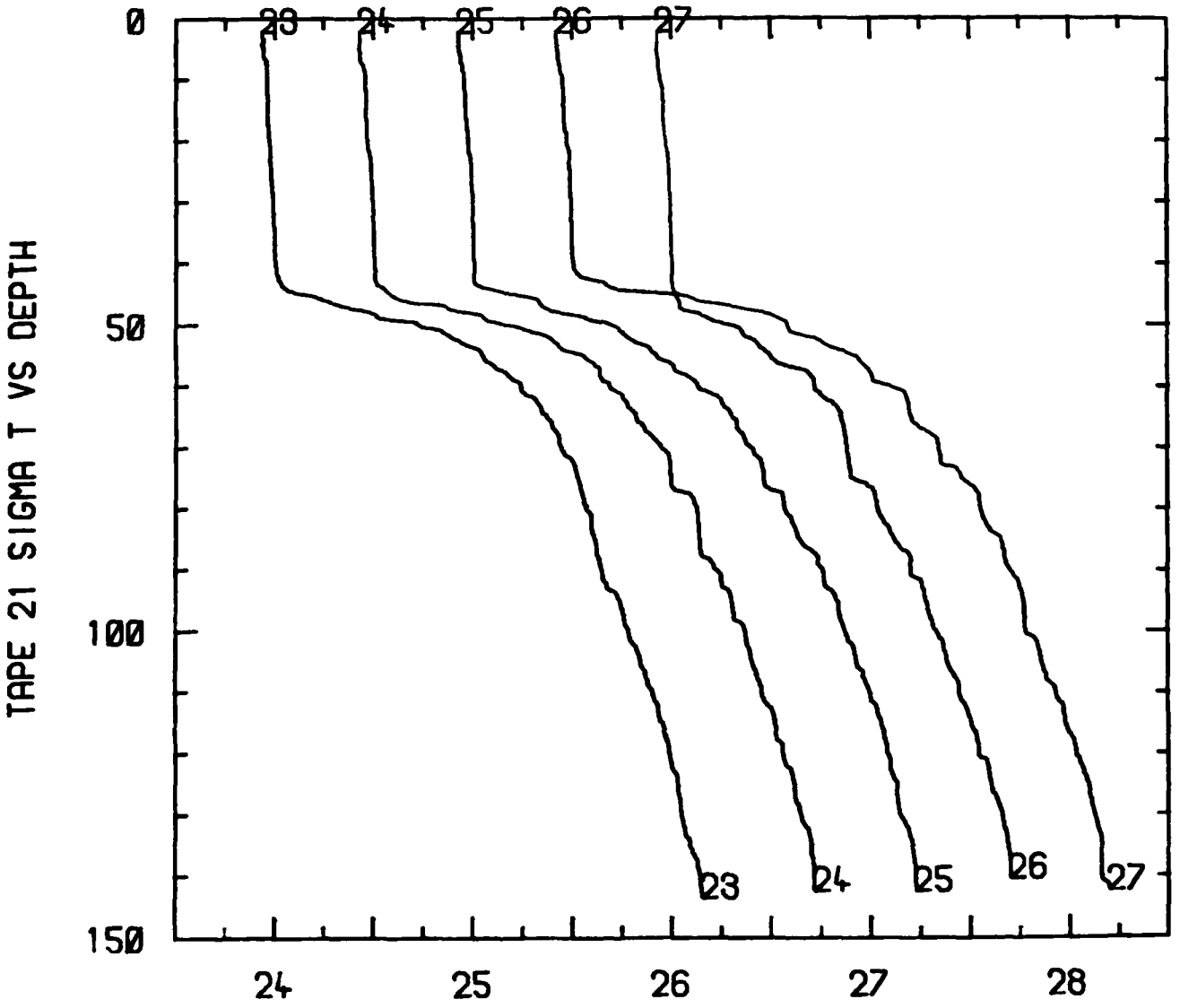
SHIP'S SPEED 5.2-5.7 KNOTS



RSVP: UNIT 4 OCTOBER 27,1983 2312-2354 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

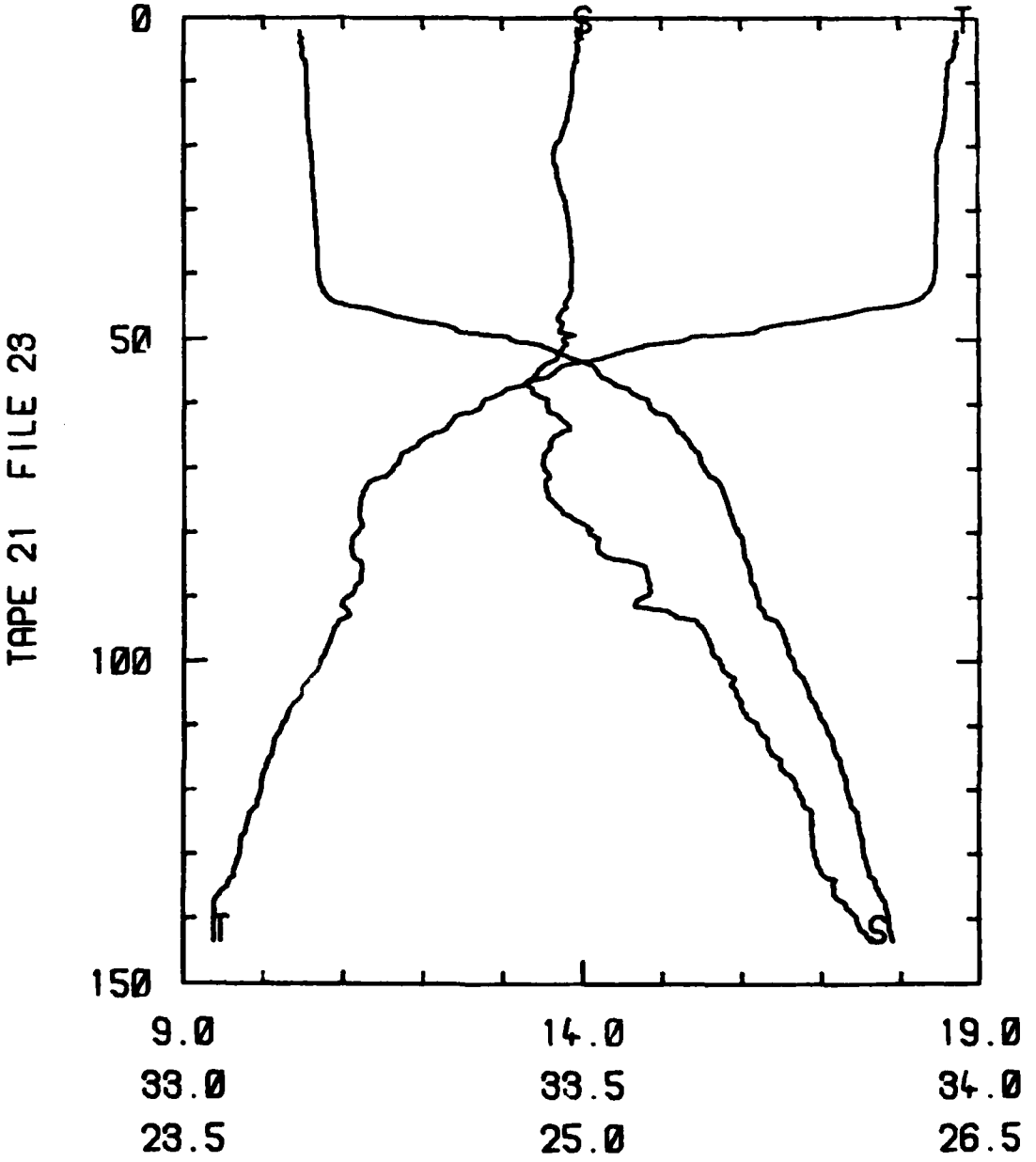
SHIP'S SPEED 5.2-5.7 KNOTS



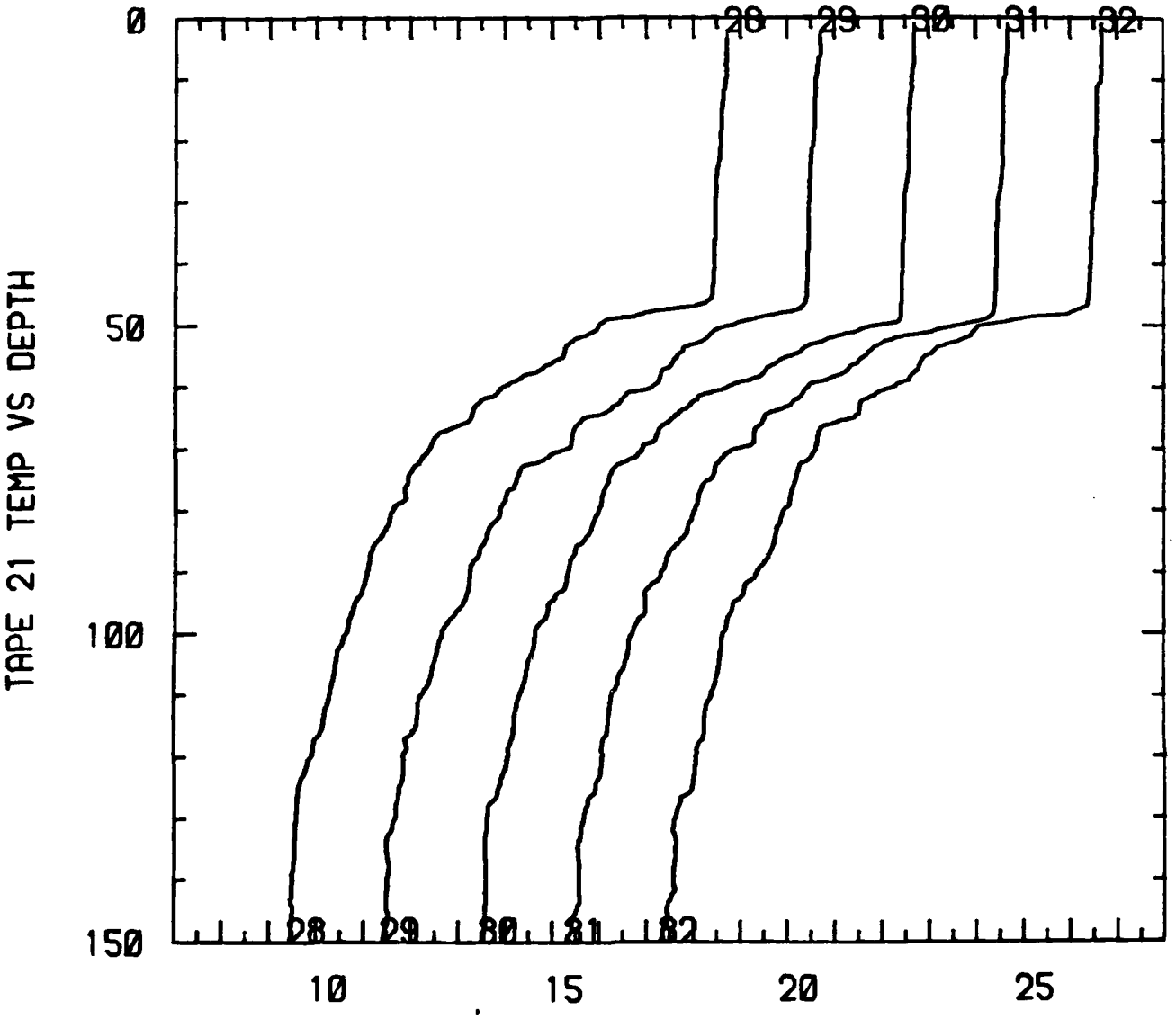
RSVP: UNIT 4 OCTOBER 27, 1983 2004-2104 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 5.2-5.7 KNOTS



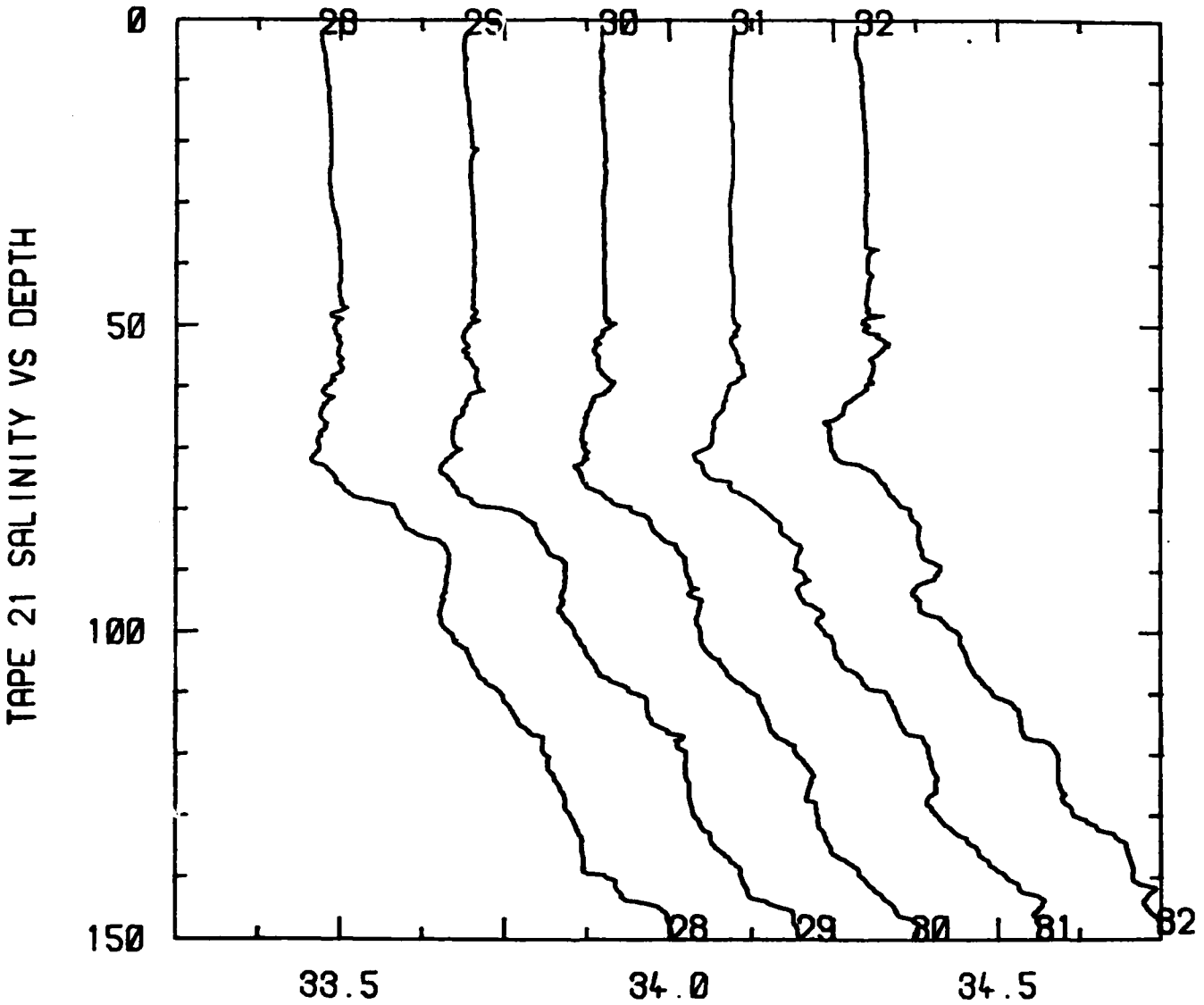
RSVP: UNIT 4 OCTOBER 27, 1983 2312 GMT



RSVP: UNIT 4 OCTOBER 27, 1983 2356-0034 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

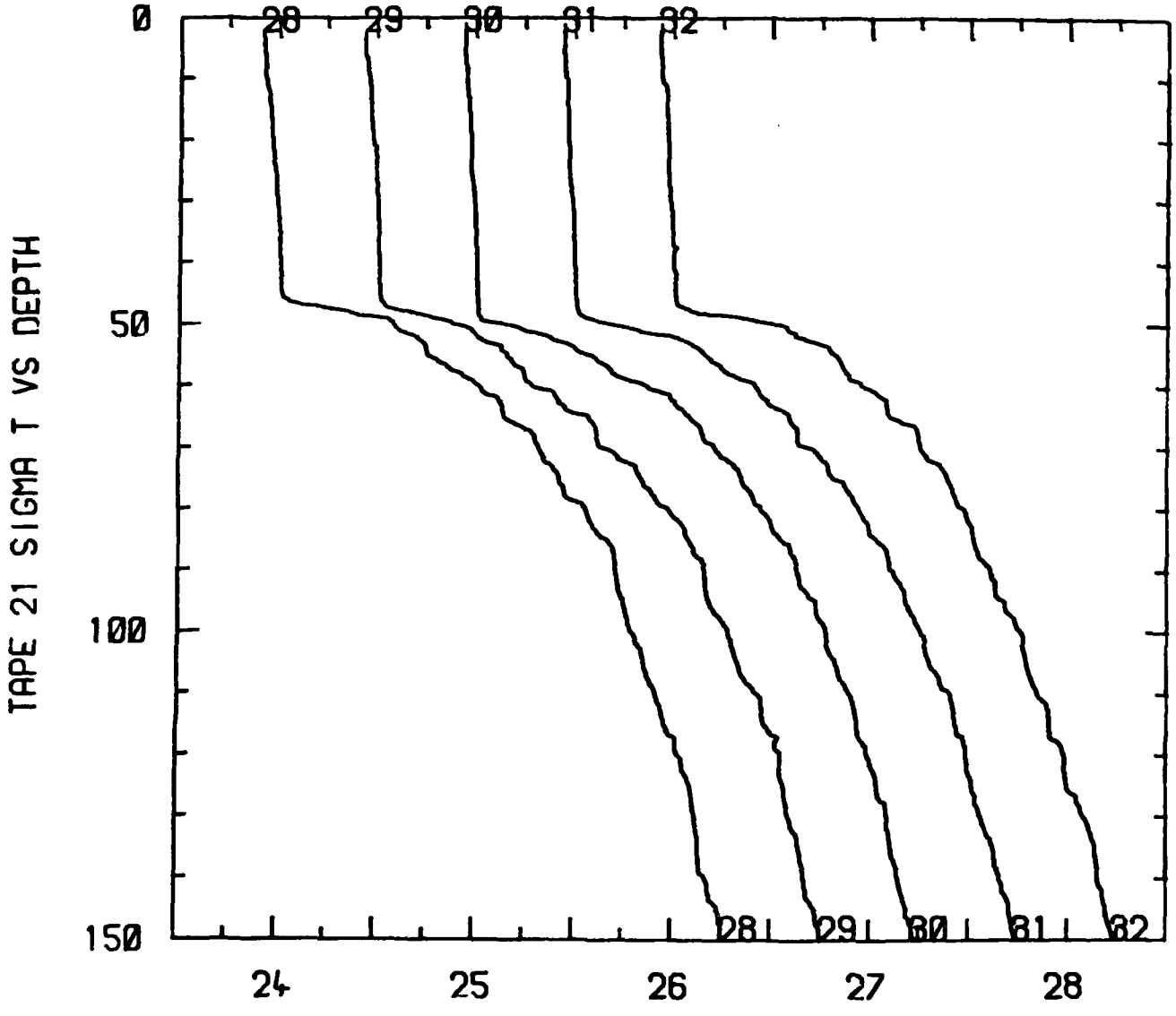
SHIP'S SPEED 5.3 KNOTS



RSVP: UNIT 4 OCTOBER 27, 1983 2356-0034 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

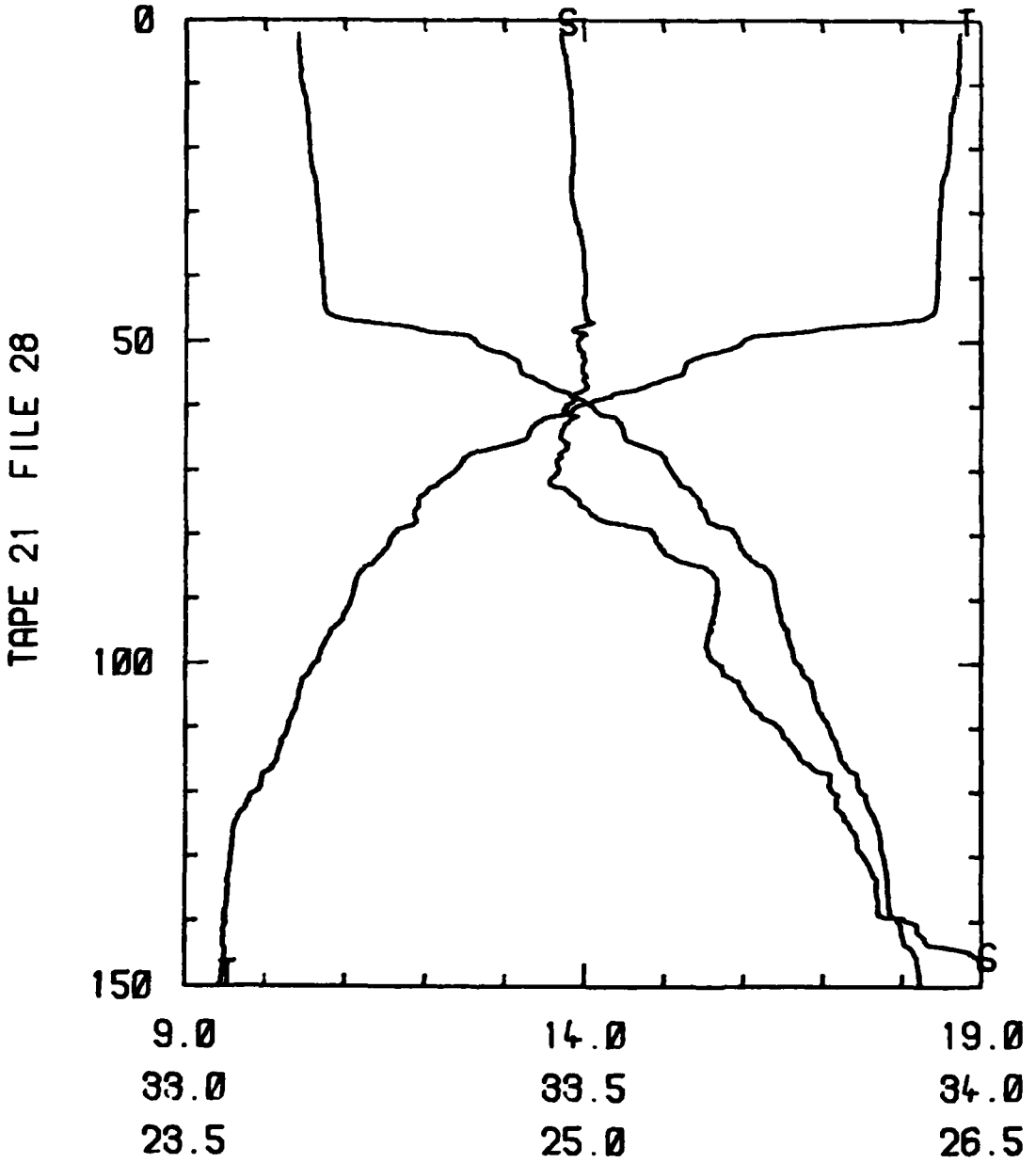
SHIP'S SPEED 5.3 KNOTS



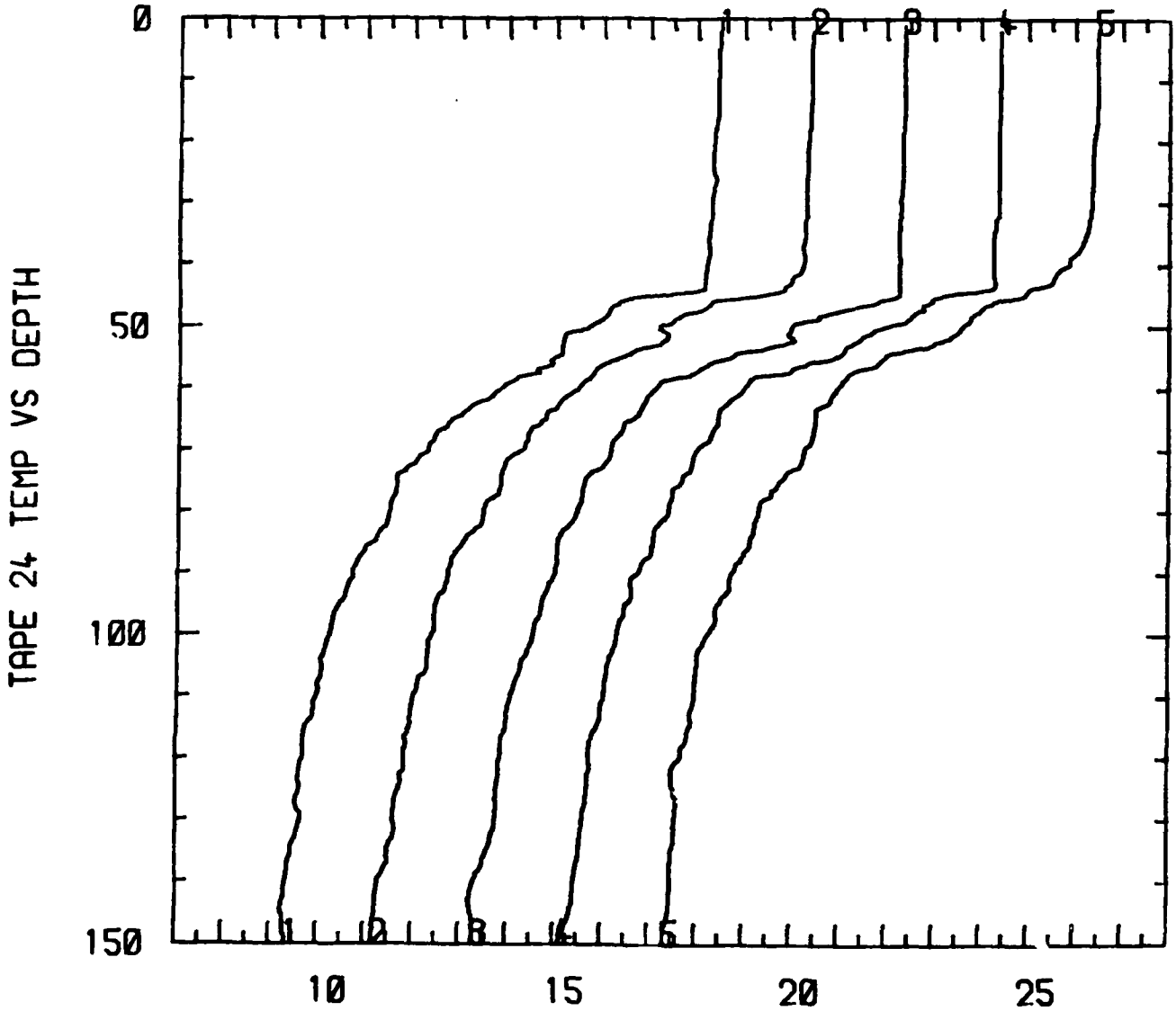
RSVP: UNIT 4 OCTOBER 27, 1983 2356-0034 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 5.3 KNOTS



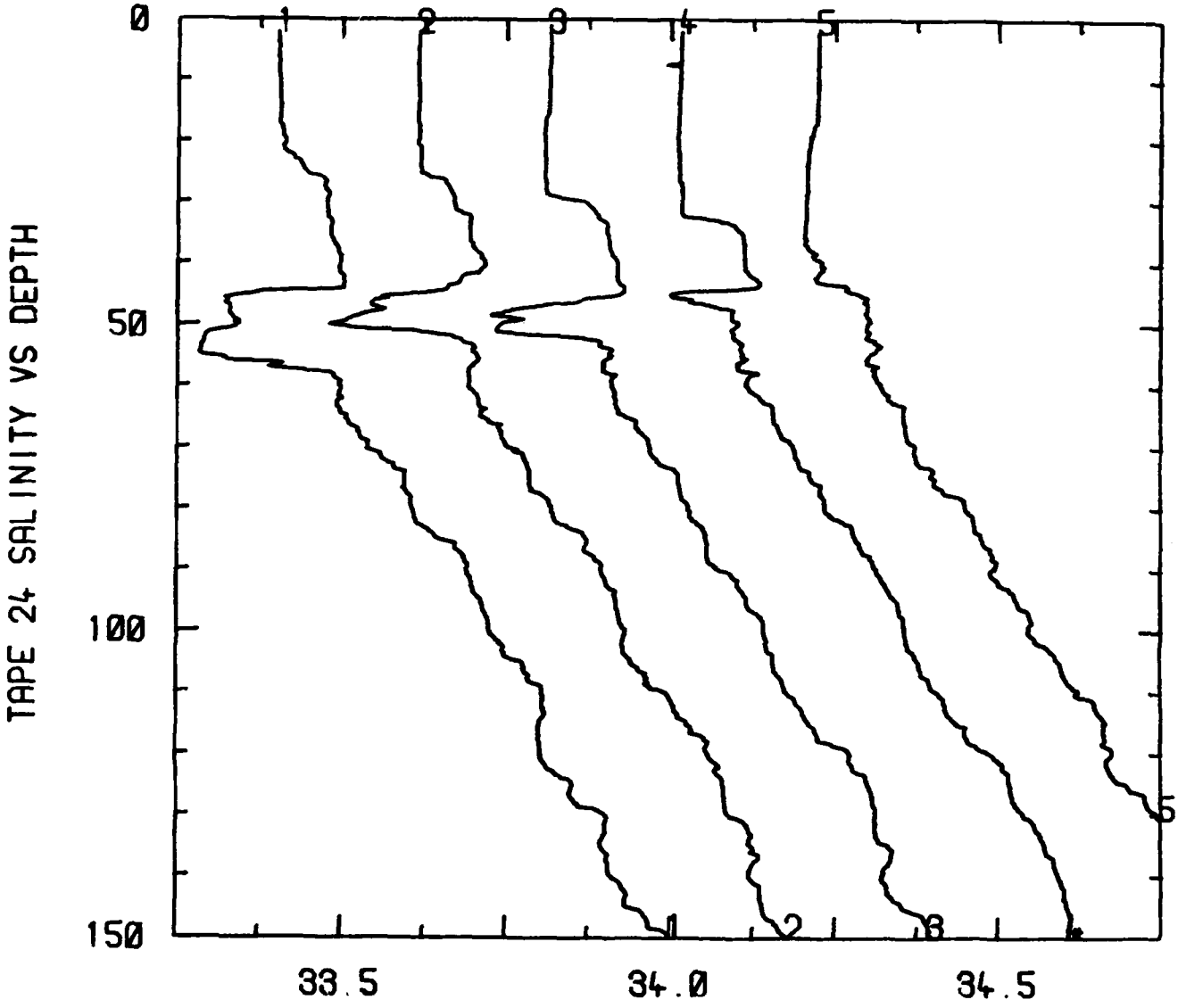
RSVP: UNIT 4 OCTOBER 27, 1983 2356 GMT



RSVP: UNIT 4 OCTOBER 28, 1983 1736-1814 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

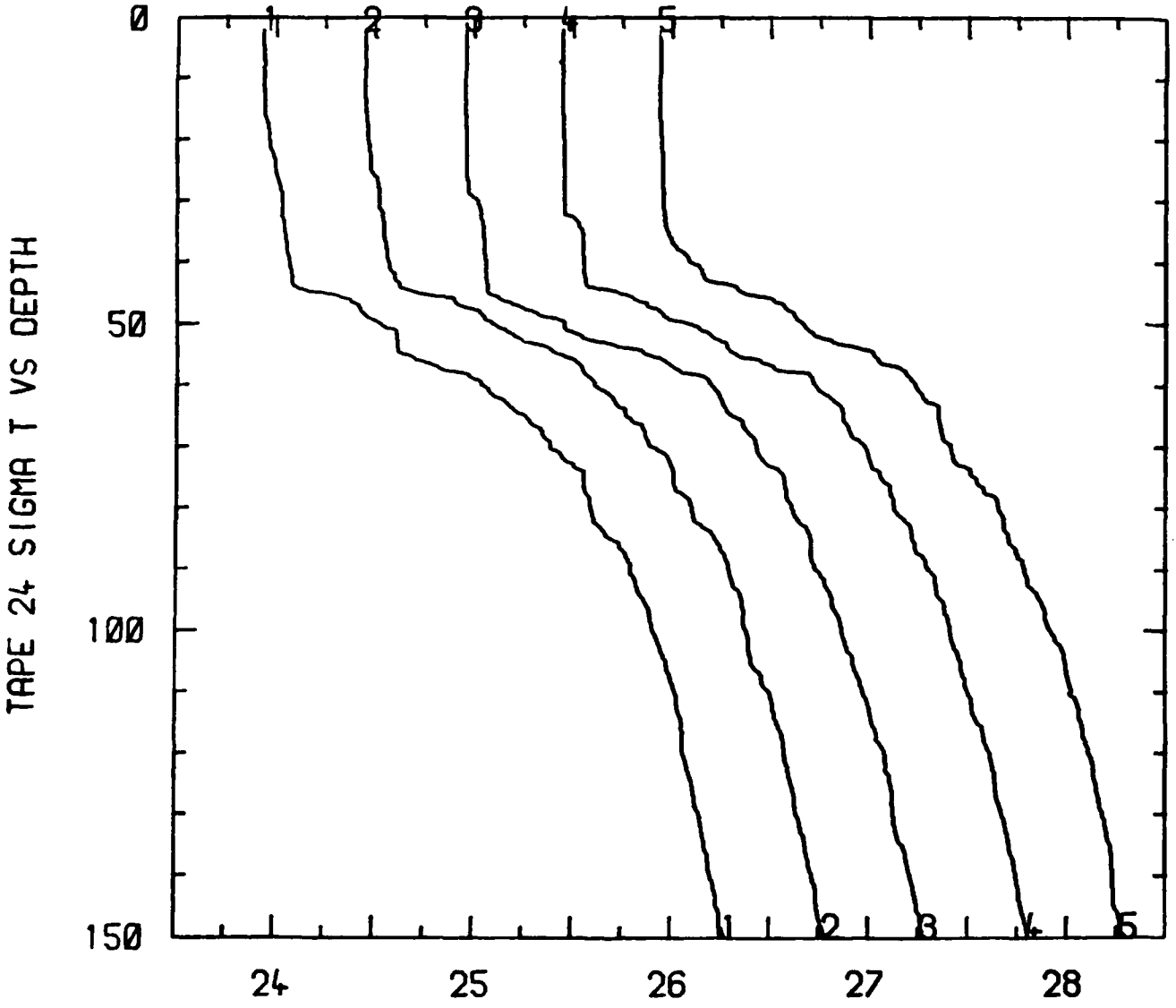
SHIP'S SPEED 4.6 KNOTS



RSVP: UNIT 4 OCTOBER 28, 1983 1736-1814 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

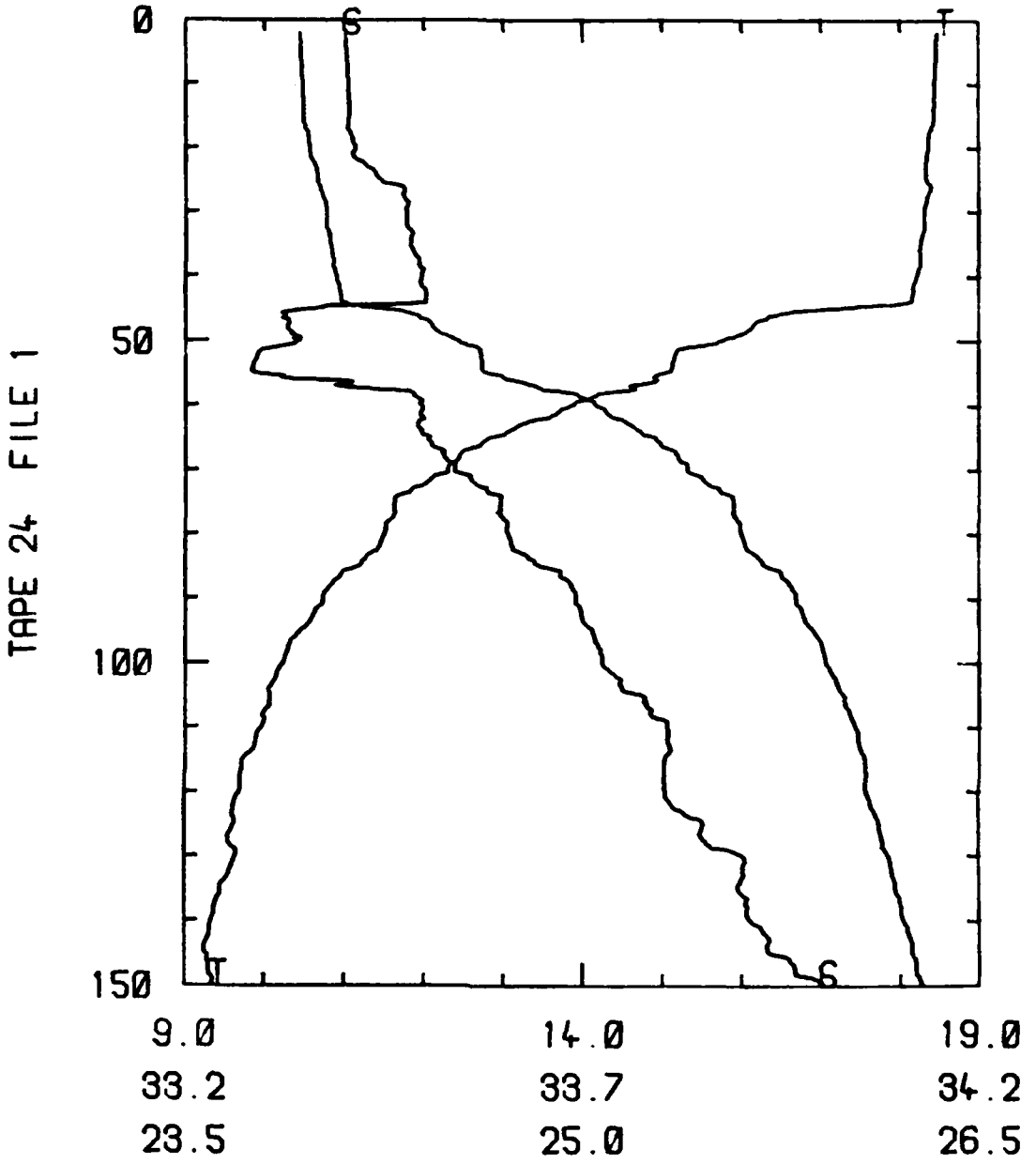
SHIP'S SPEED 4.6 KNOTS



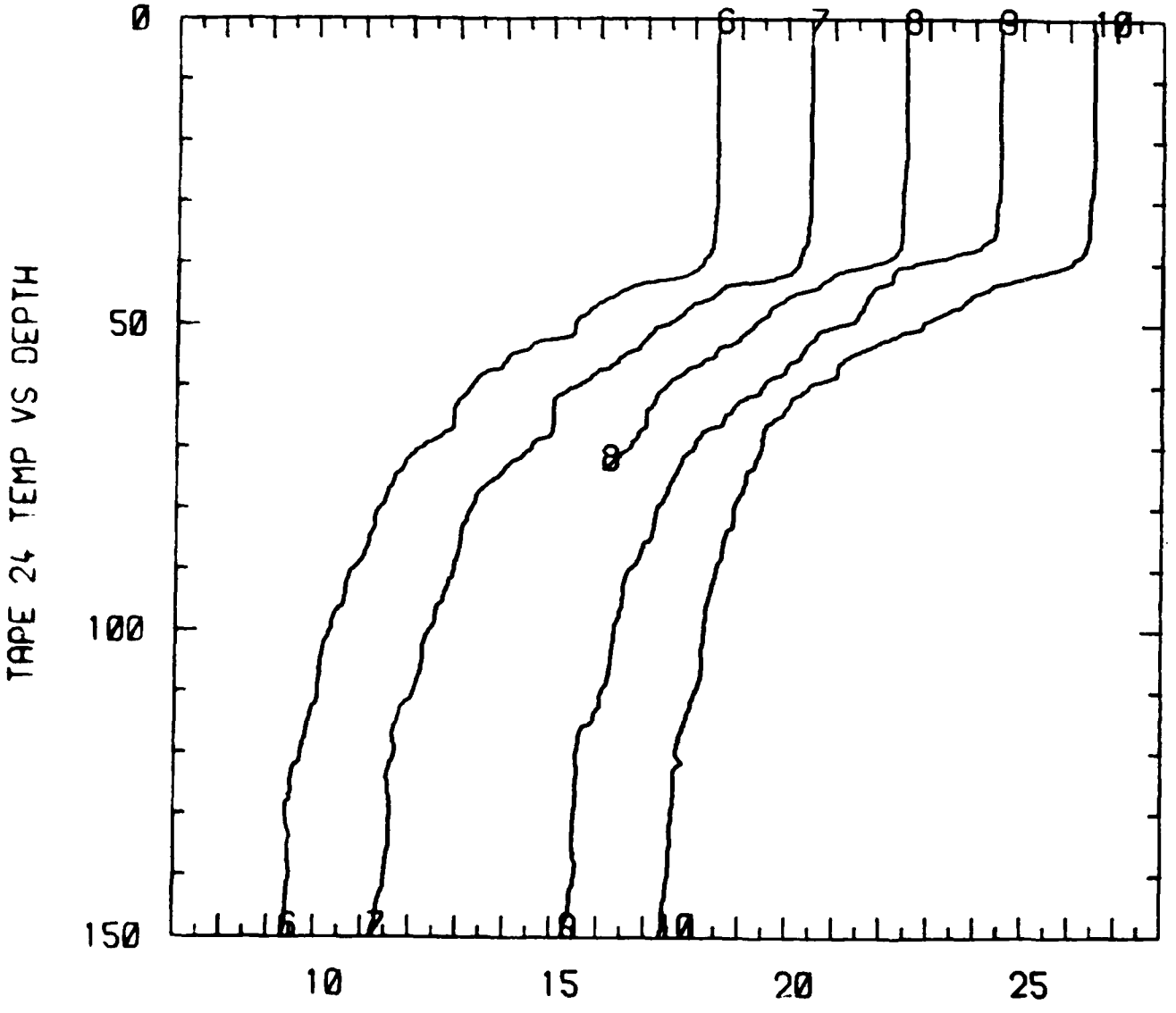
RSVP: UNIT 4 OCTOBER 28,1983 1736-1814 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 4.6 KNOTS



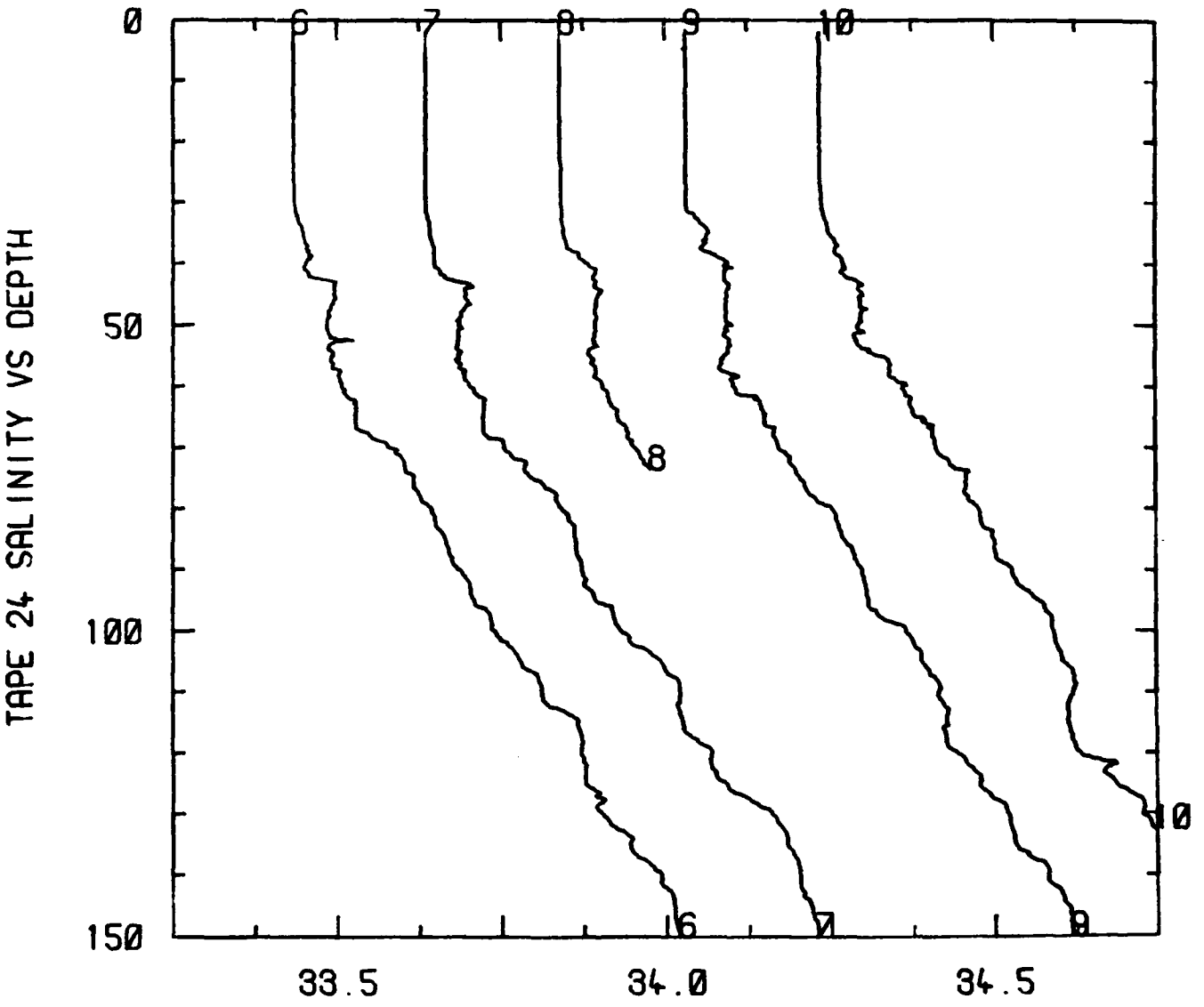
RSVP: UNIT 4 OCTOBER 28, 1983 1736 GMT



RSVP. UNIT 4 OCTOBER 28, 1983 1816-1854 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

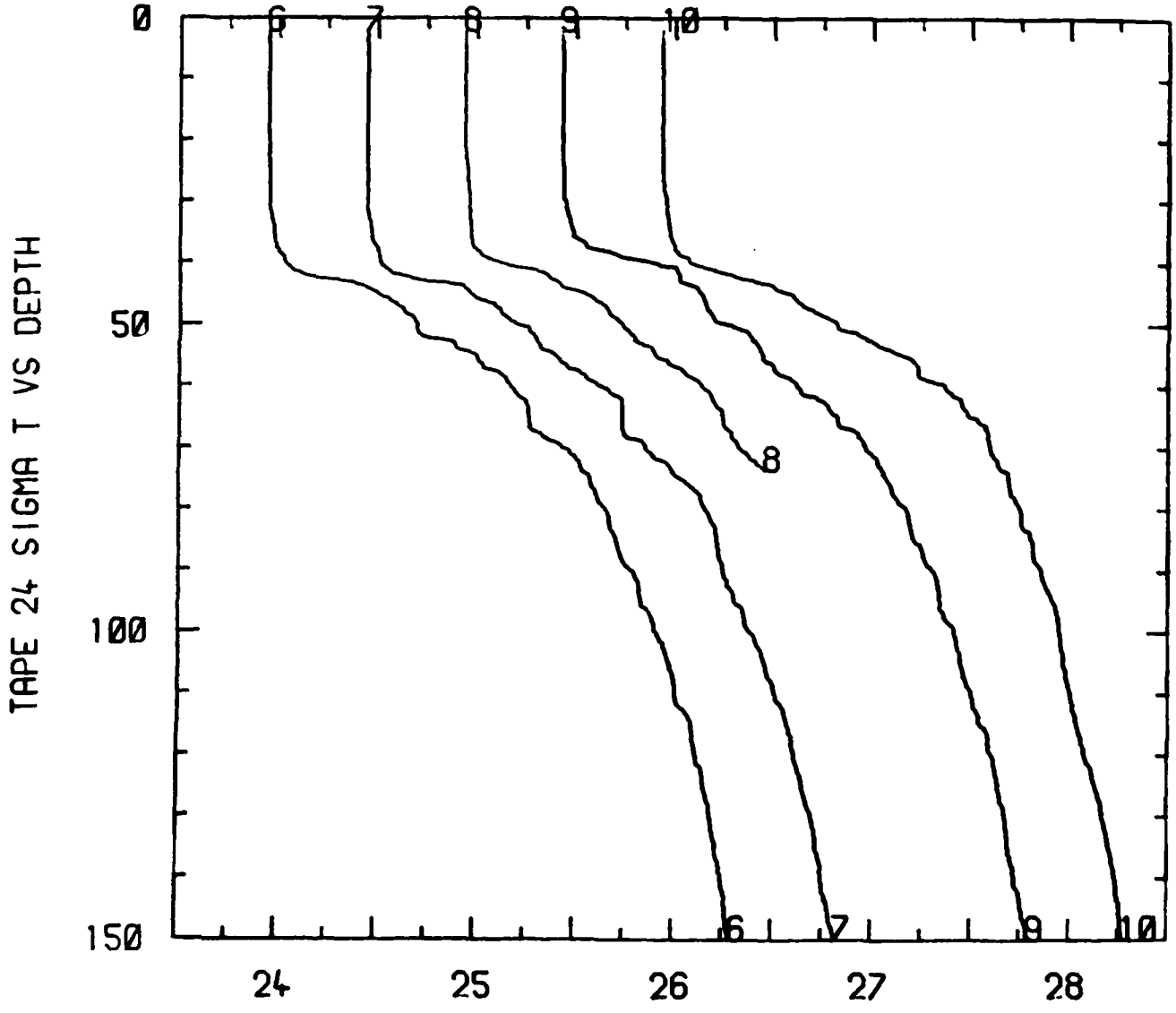
SHIP'S SPEED 4.6 KNOTS



RSVP: UNIT 4 OCTOBER 28, 1983 1816-1854 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

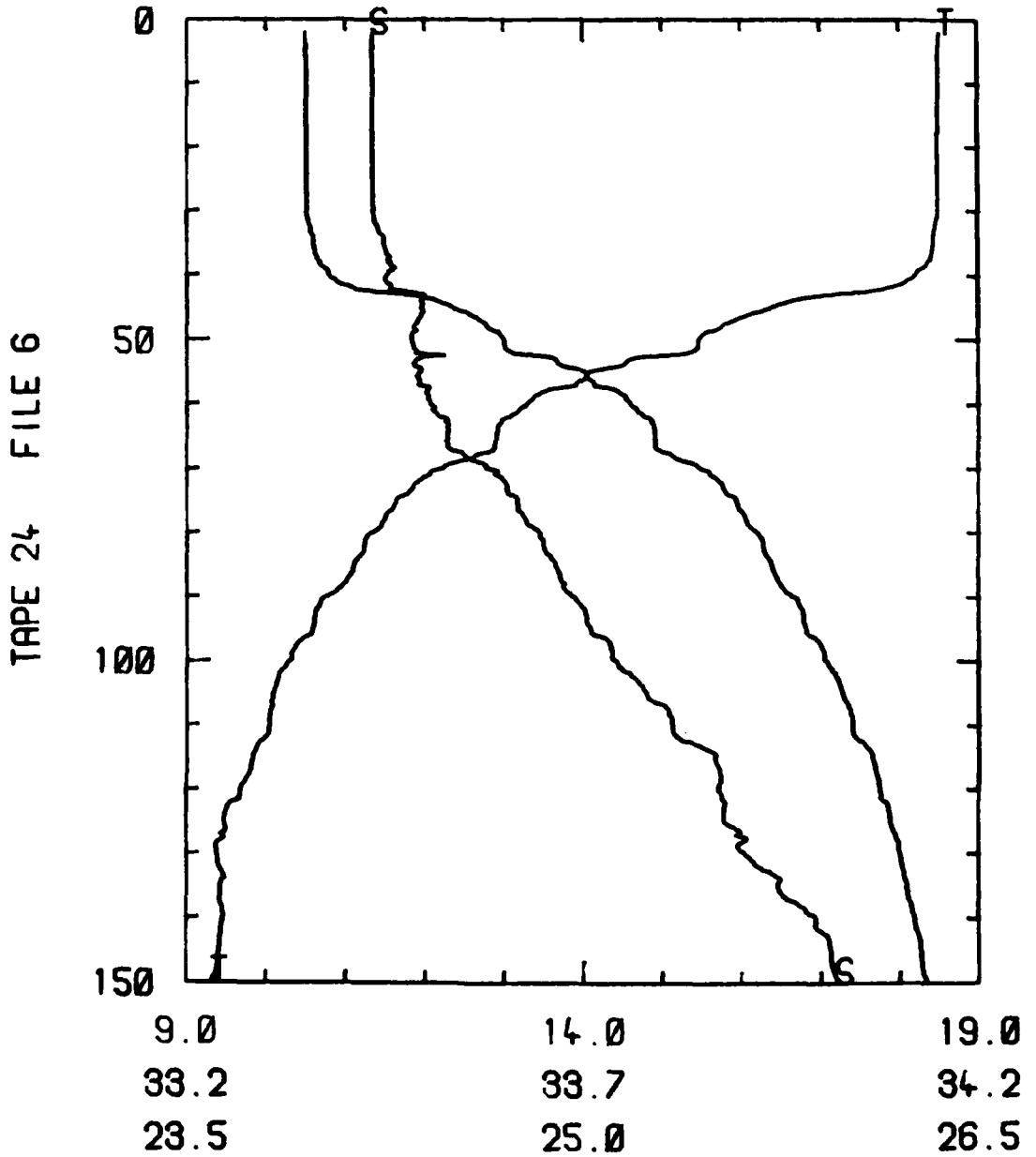
SHIP'S SPEED 4.6 KNOTS



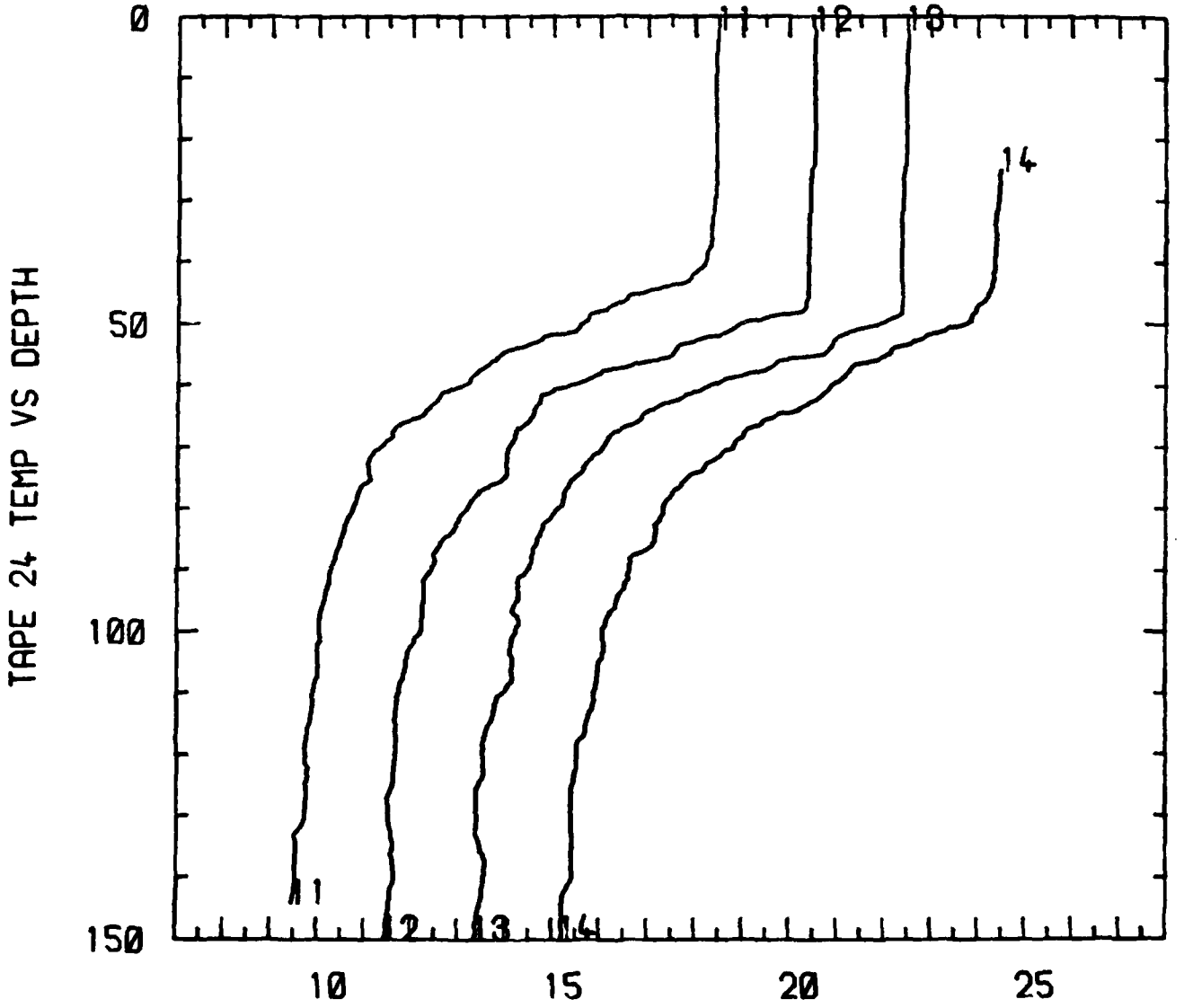
RSVP: UNIT 4 OCTOBER 28,1983 1816-1854 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 4.6 KNOTS



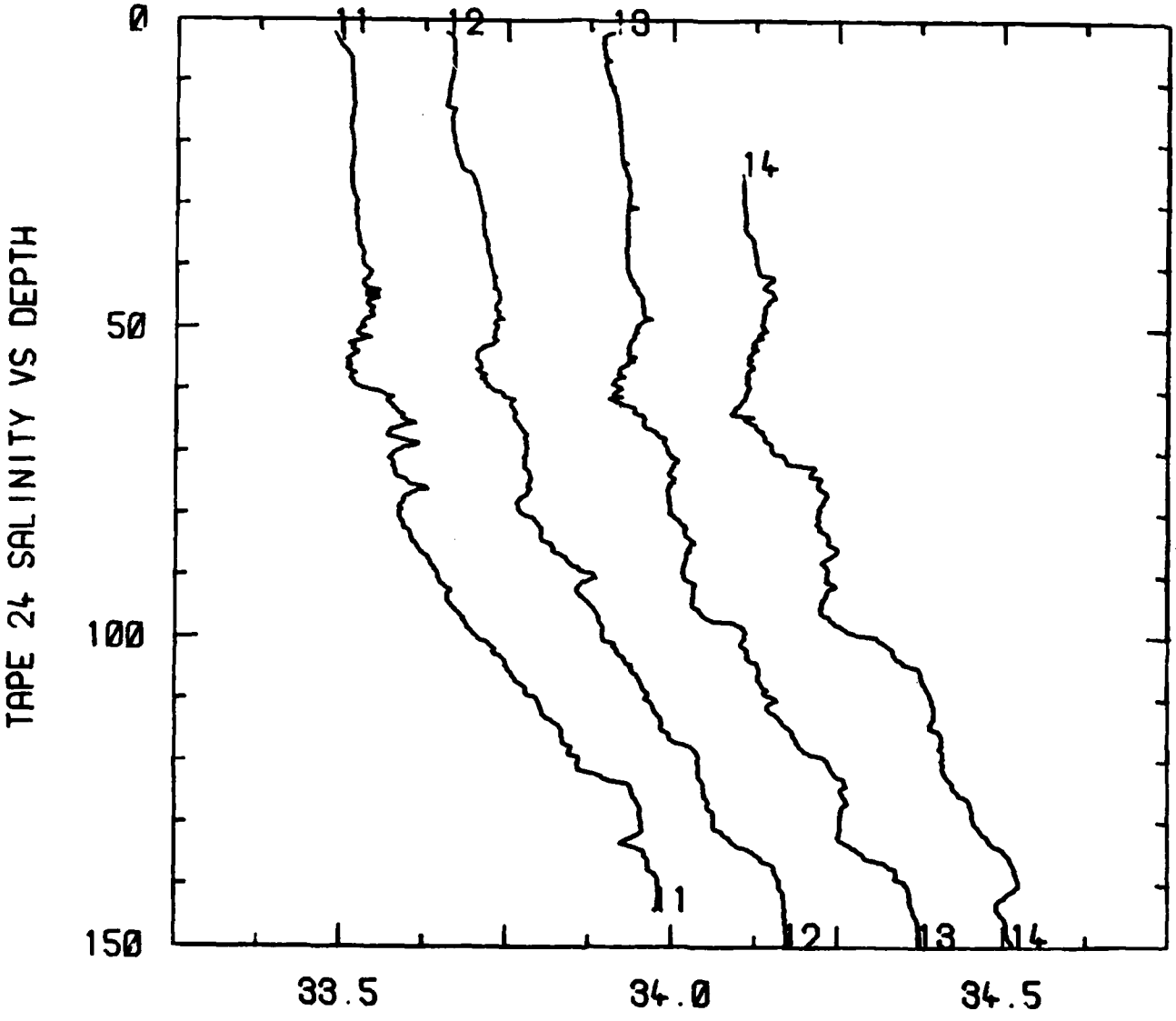
RSVP: UNIT 4 OCTOBER 28, 1983 1816 GMT



RSVP: UNIT 4 OCTOBER 28, 1983 1856-1926 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

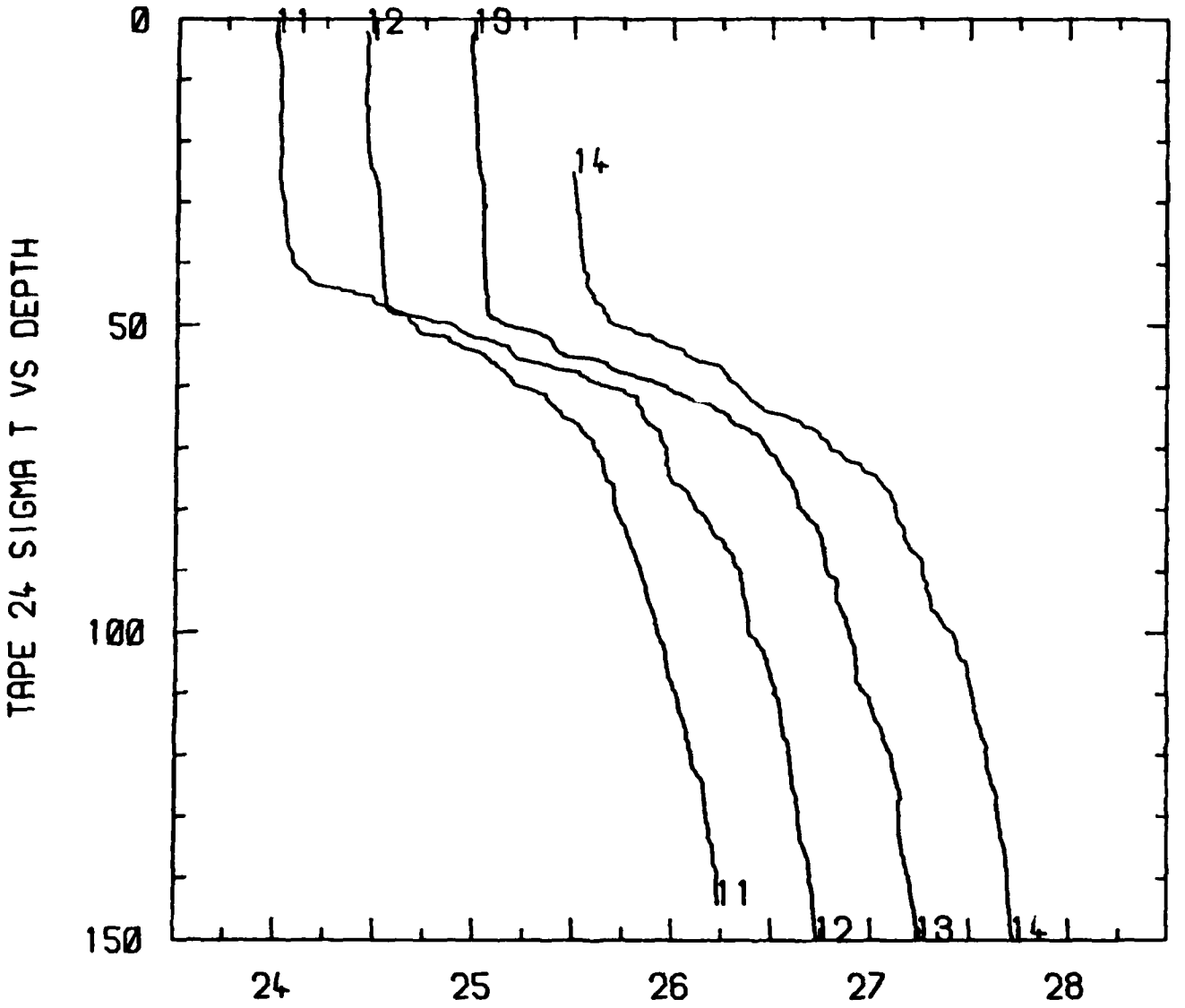
SHIP'S SPEED 4.9 KNOTS



RSVP: UNIT 4 OCTOBER 28, 1983 1856-1926 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

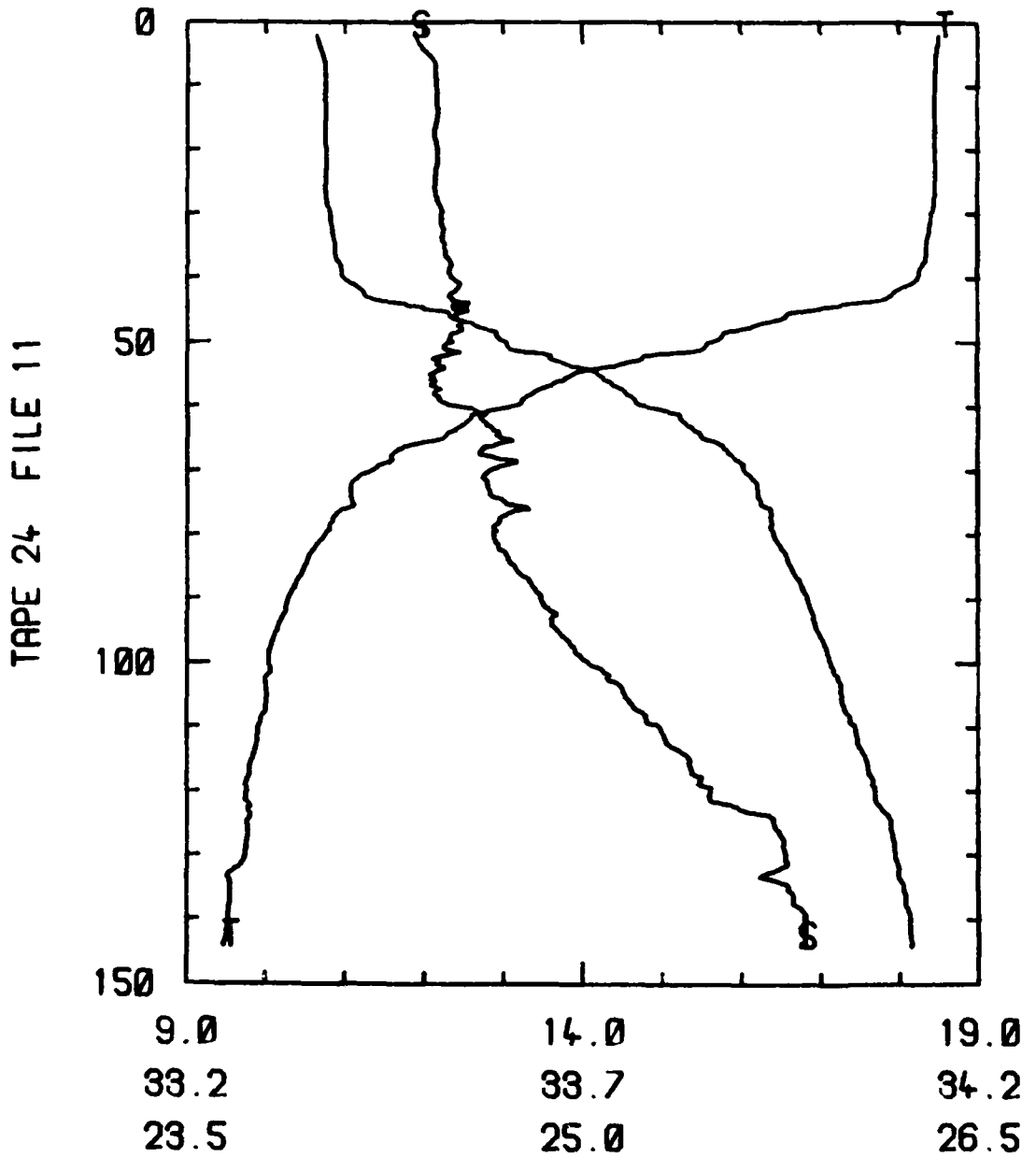
SHIP'S SPEED 4.9 KNOTS



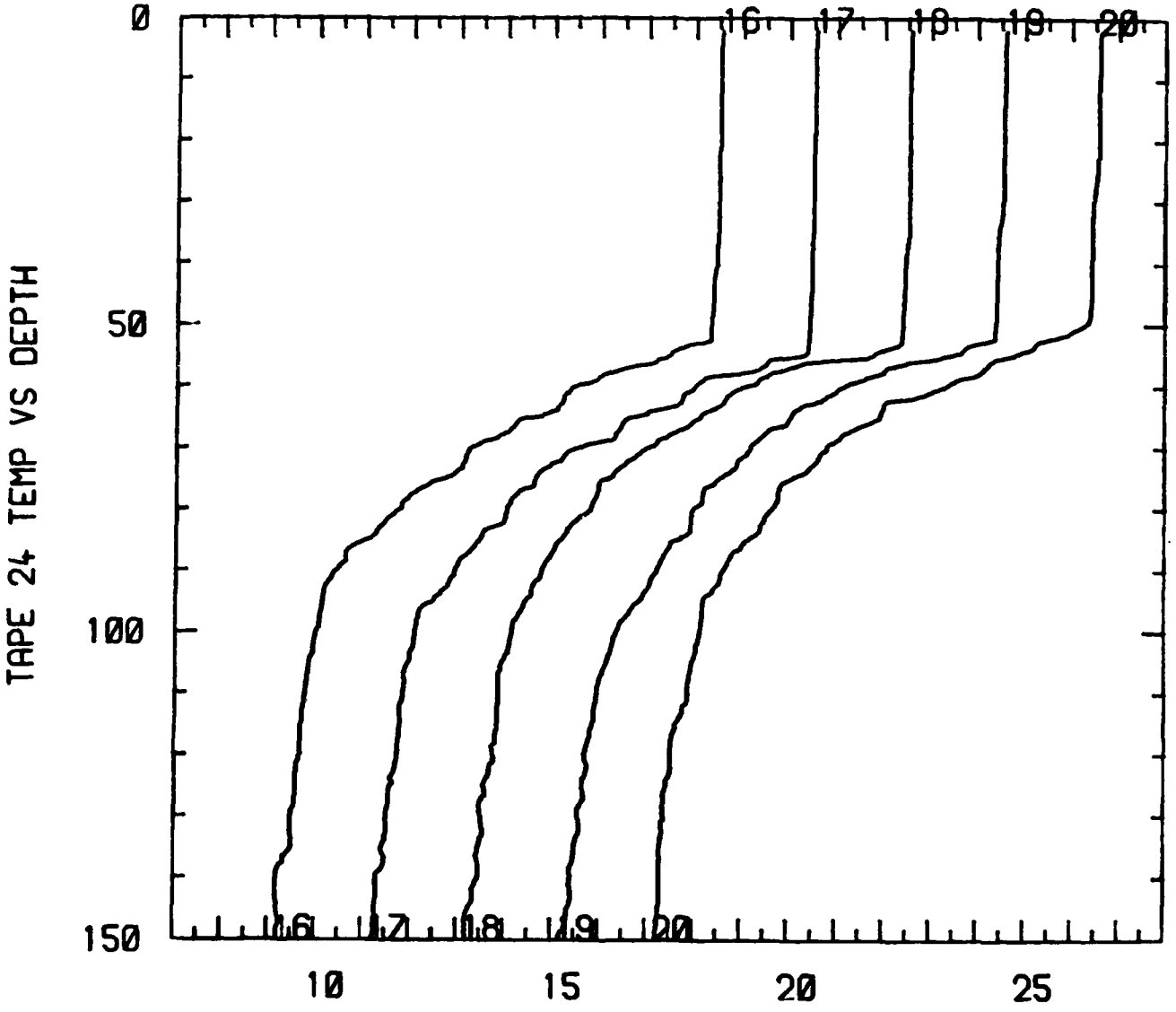
RSVP: UNIT 4 OCTOBER 28, 1983 1856-1926 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 4.9 KNOTS



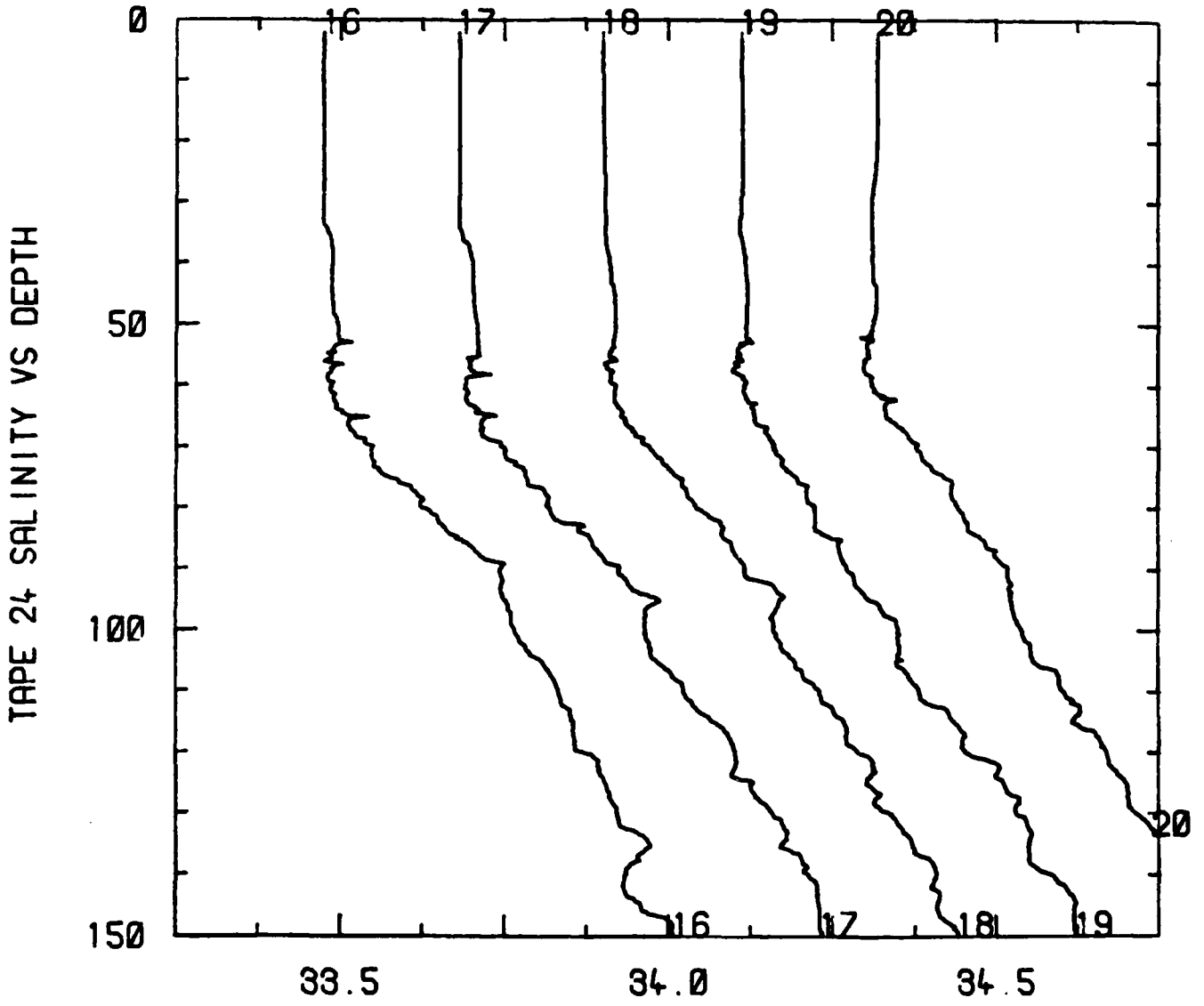
RSVP: UNIT 4 OCTOBER 28, 1983 1856 GMT



RSVP: UNIT 4 OCTOBER 28, 1983 2000-2038 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

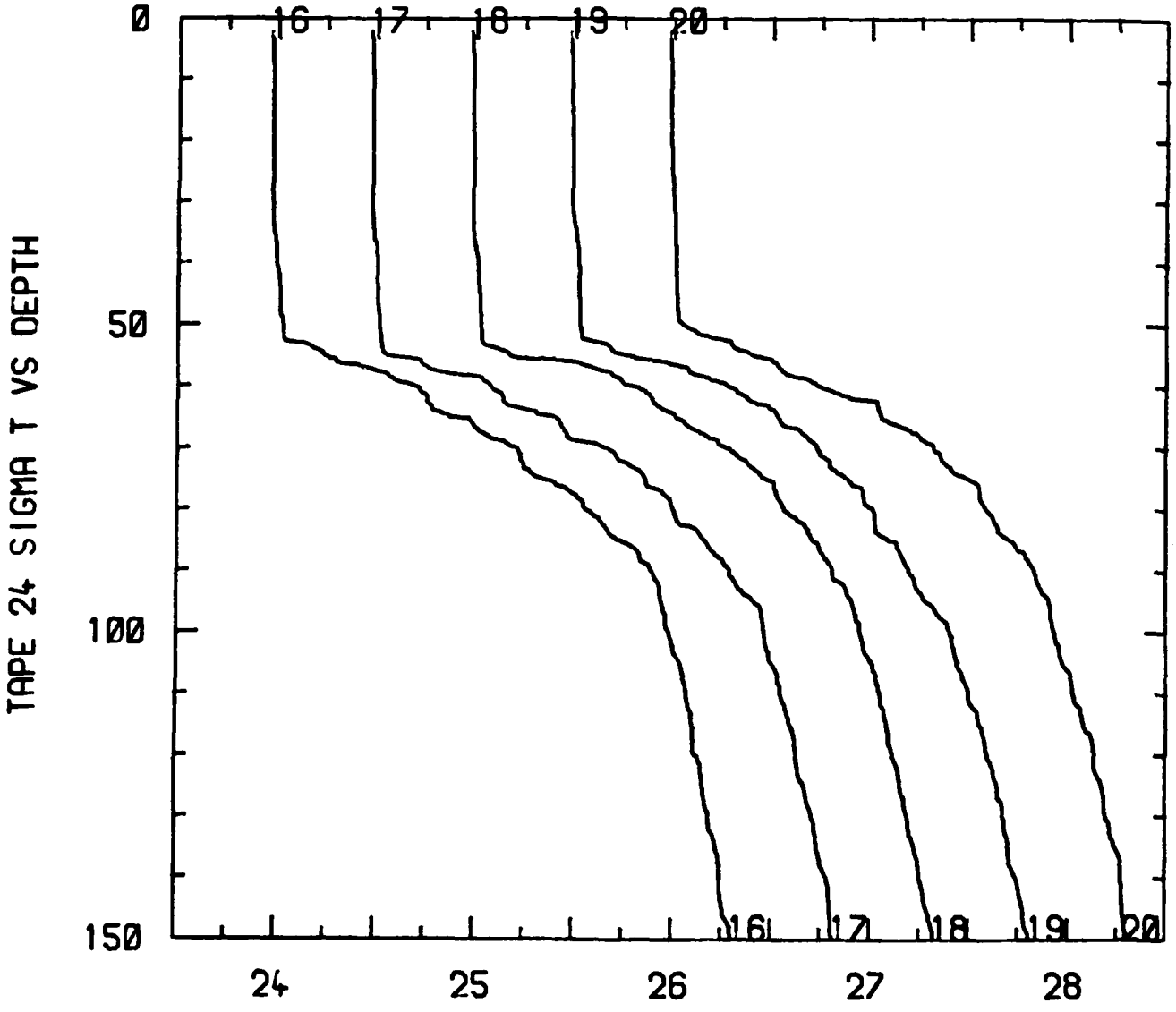
SHIP'S SPEED 4.9 KNOTS



RSVP: UNIT 4 OCTOBER 28, 1983 2000-2038 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

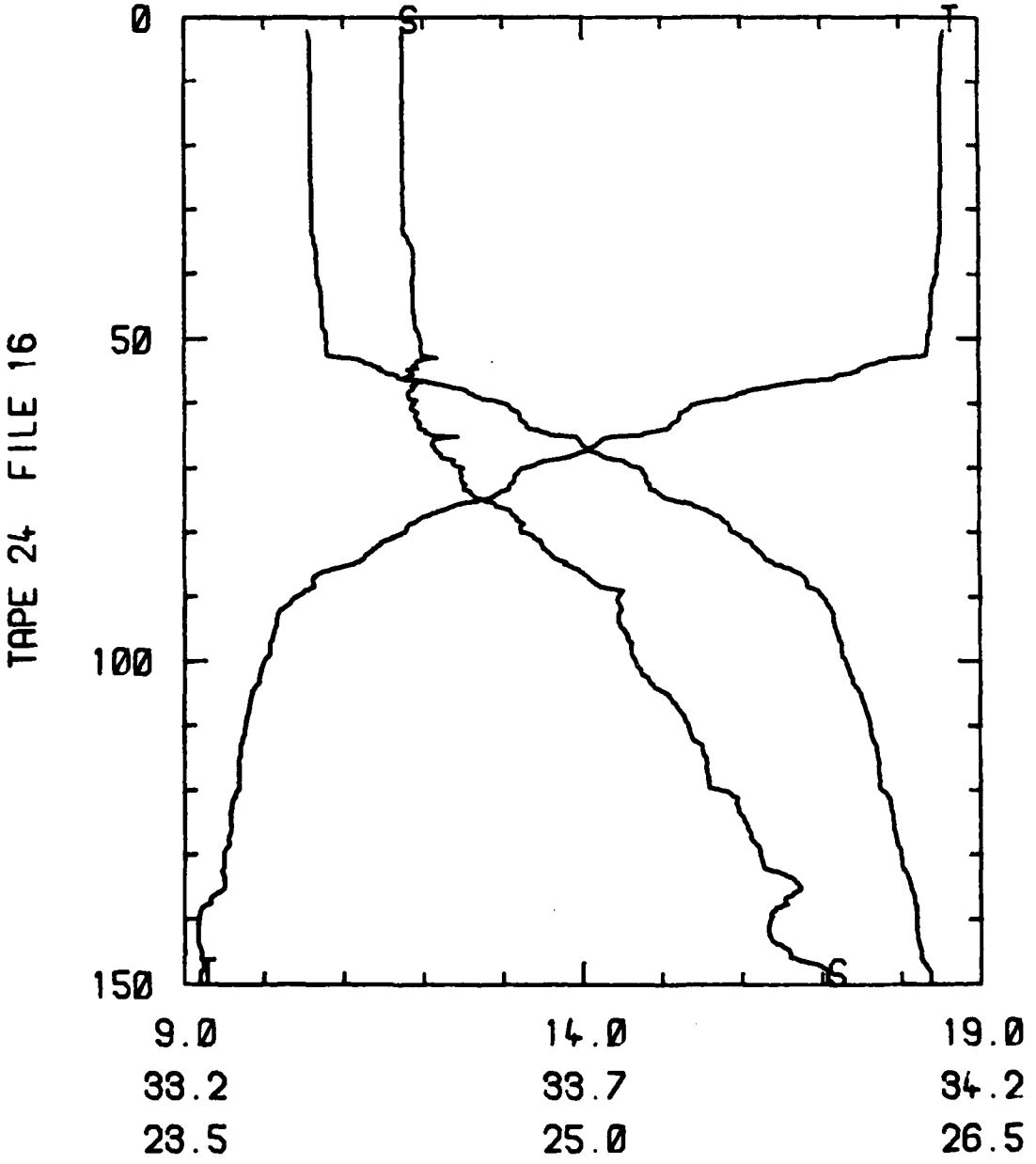
SHIP'S SPEED 4.9 KNOTS



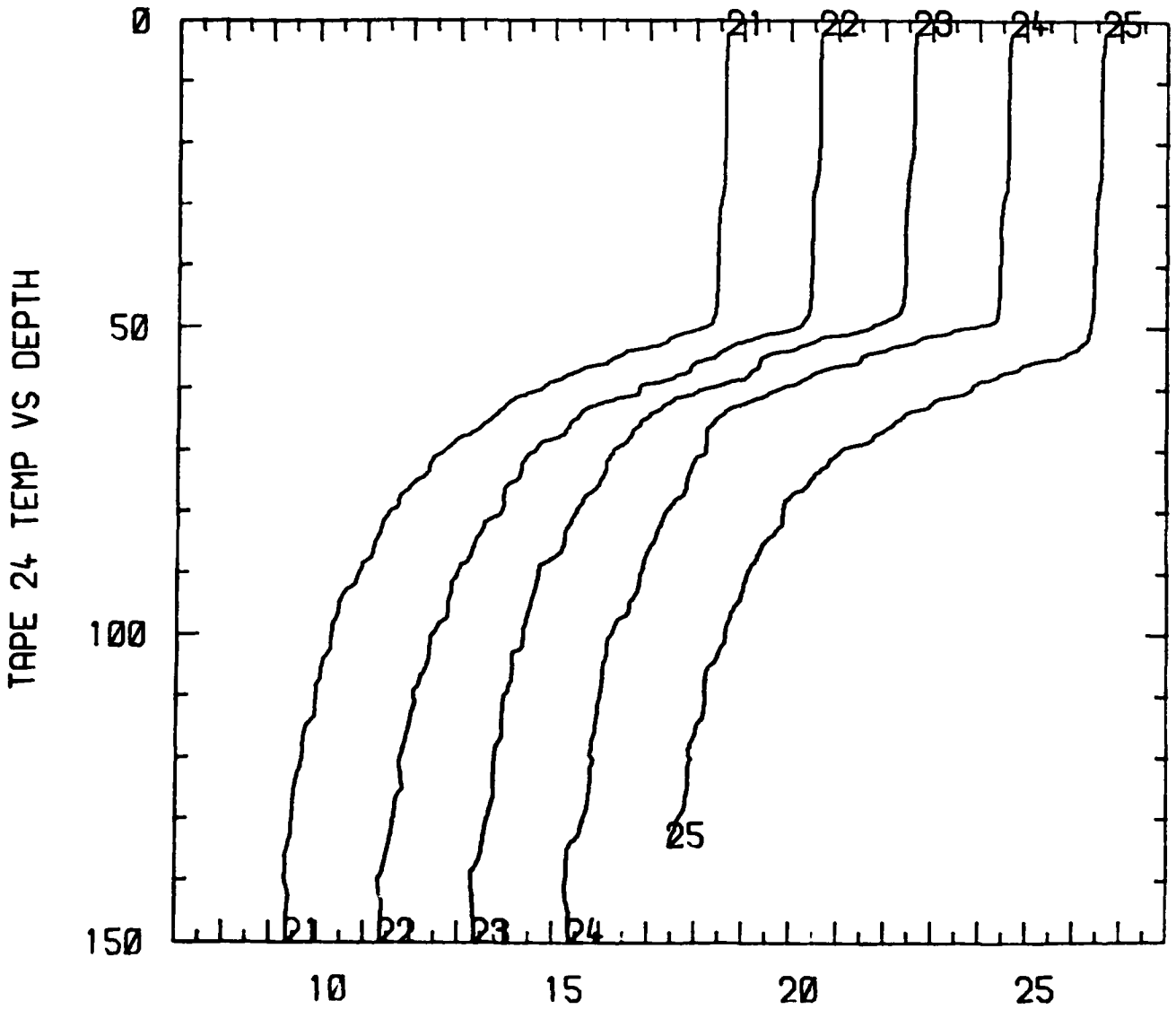
RSVP: UNIT 4 OCTOBER 28,1983 2000-2038 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 4.9 KNOTS



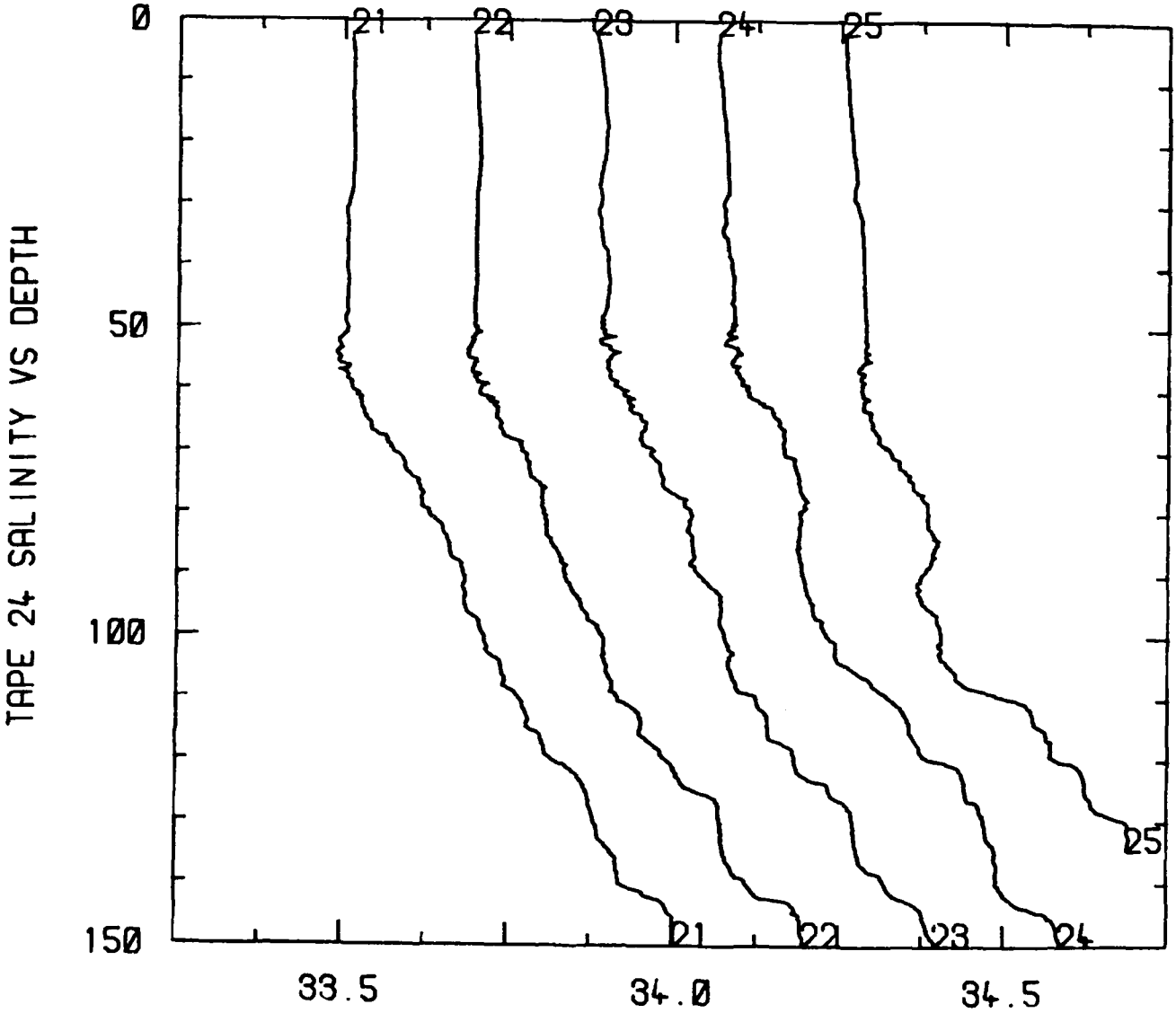
RSVP: UNIT 4 OCTOBER 28, 1983 2004 GMT



RSVP: UNIT 4 OCTOBER 28, 1983 2040-2116 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

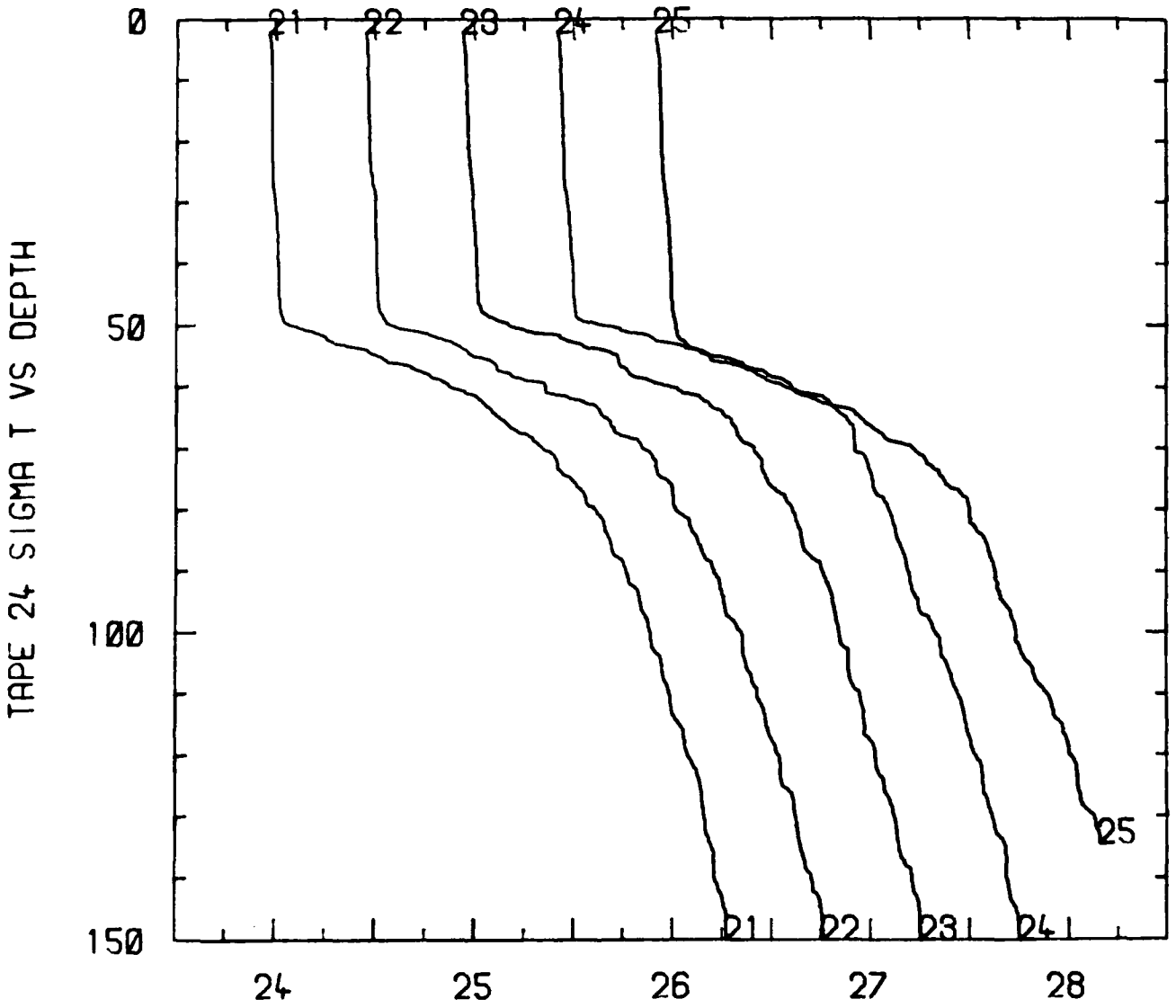
SHIP'S SPEED 4.6-4.8 KNOTS



RSVP: UNIT 4 OCTOBER 28, 1983 2040-2116 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

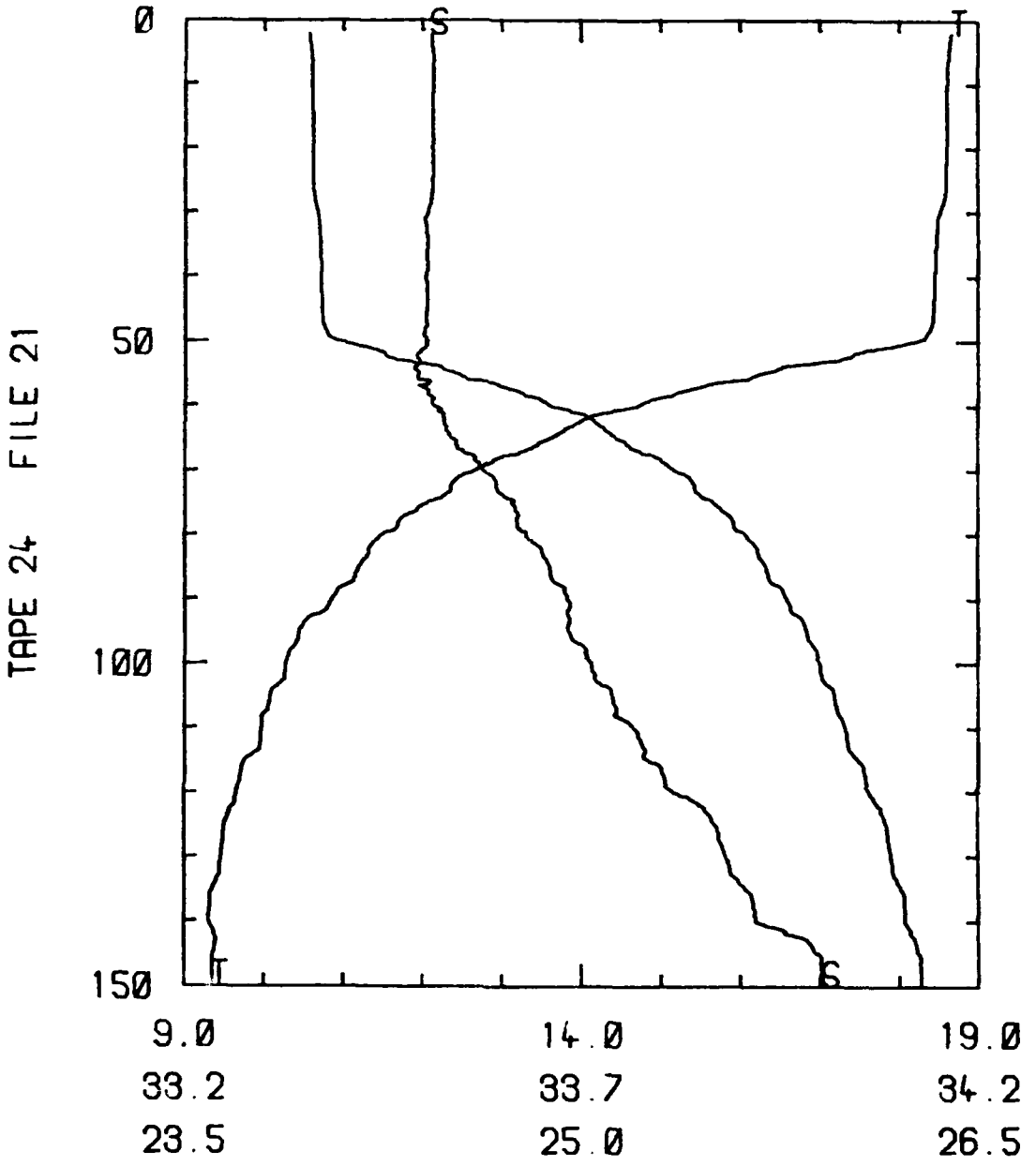
SHIP'S SPEED 4.6-4.8 KNOTS



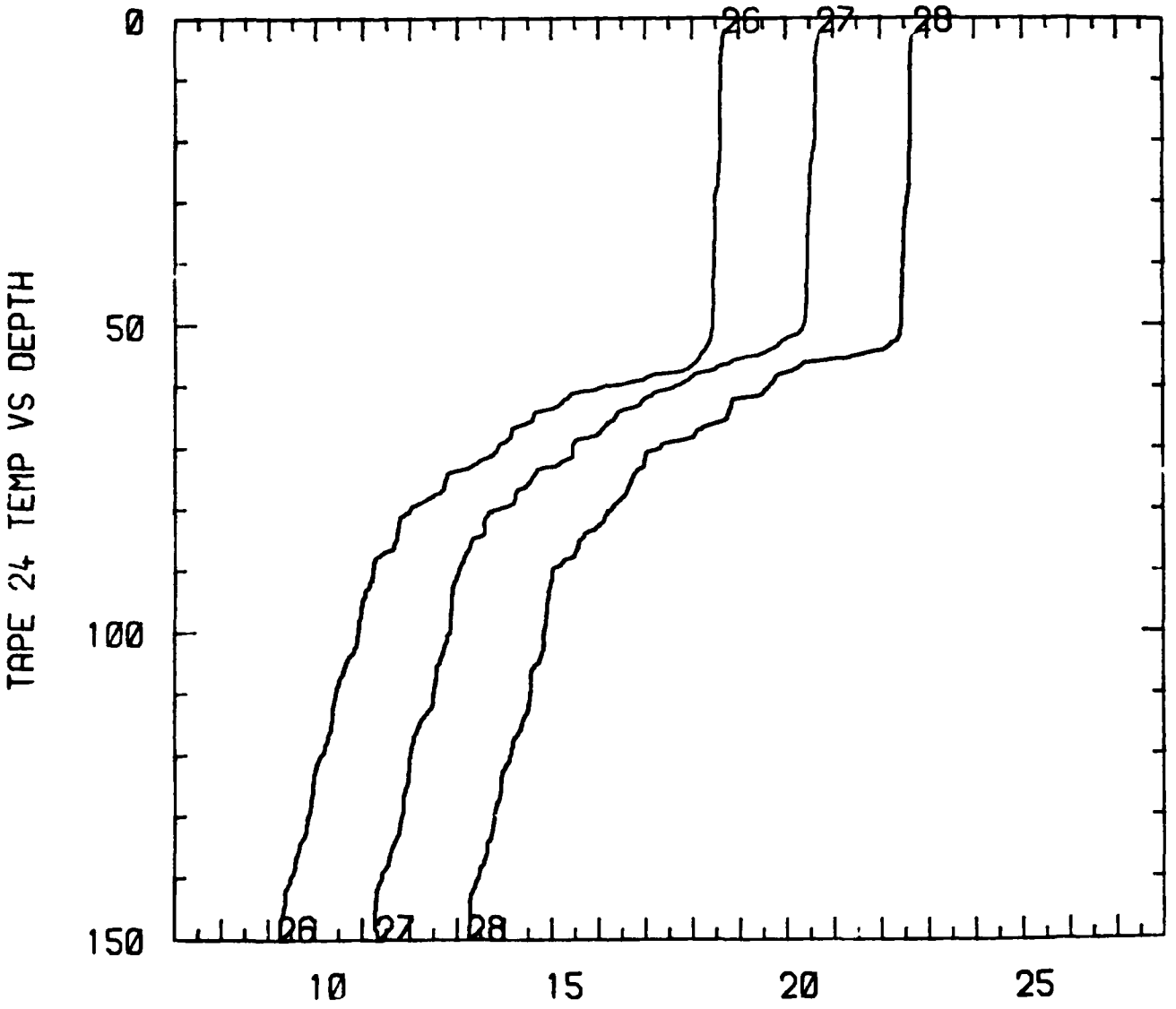
RSVP: UNIT 4 OCTOBER 28, 1983 2040-2116 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 4.6-4.8 KNOTS



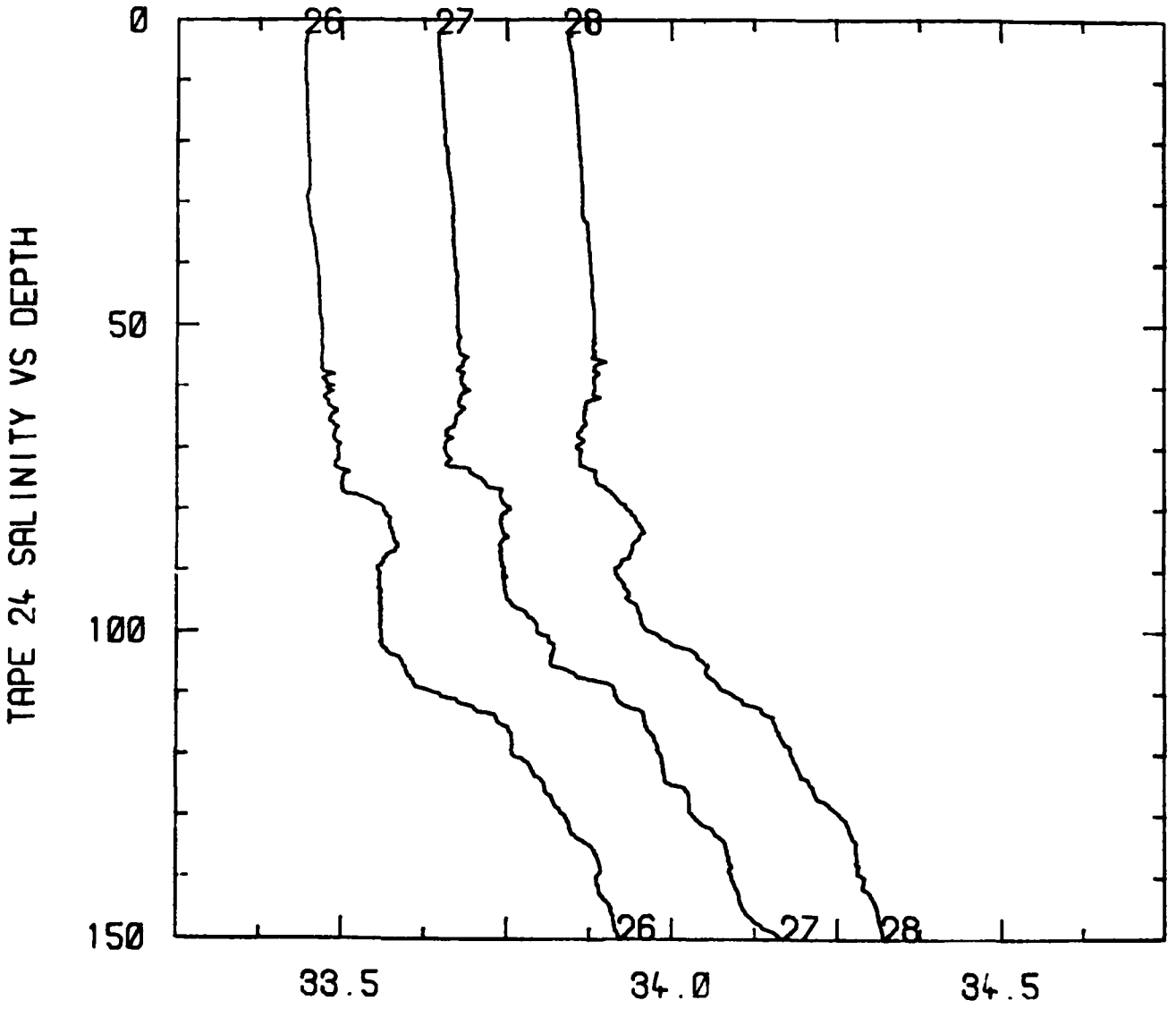
RSVP. UNIT 4 OCTOBER 28, 1983 2040 GMT



RSVP: UNIT 4 OCTOBER 28, 1983 2120-2142 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

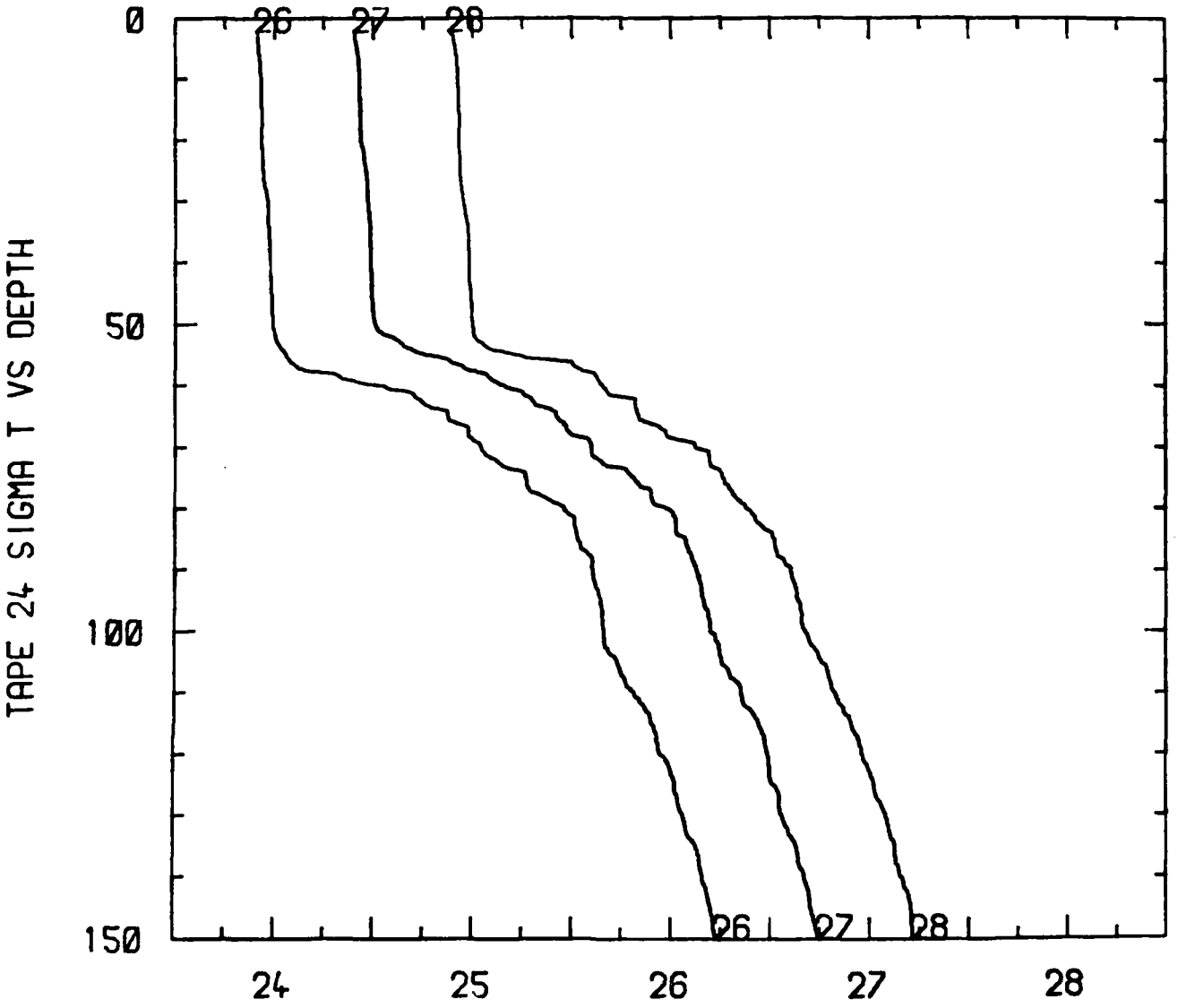
SHIP'S SPEED 4.7 KNOTS



RSVP: UNIT 4 OCTOBER 28, 1983 2120-2142 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

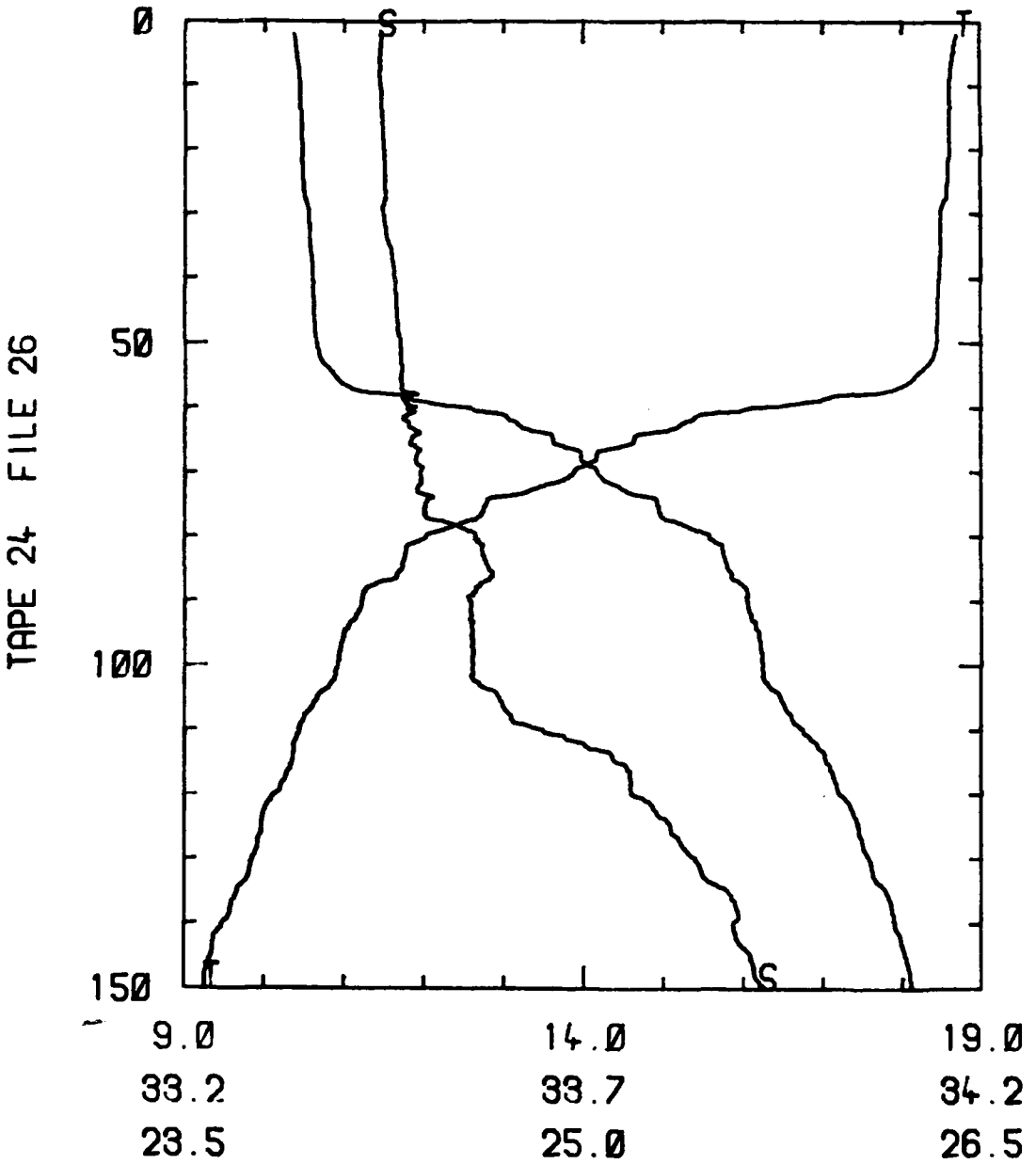
SHIP'S SPEED 4.7 KNOTS



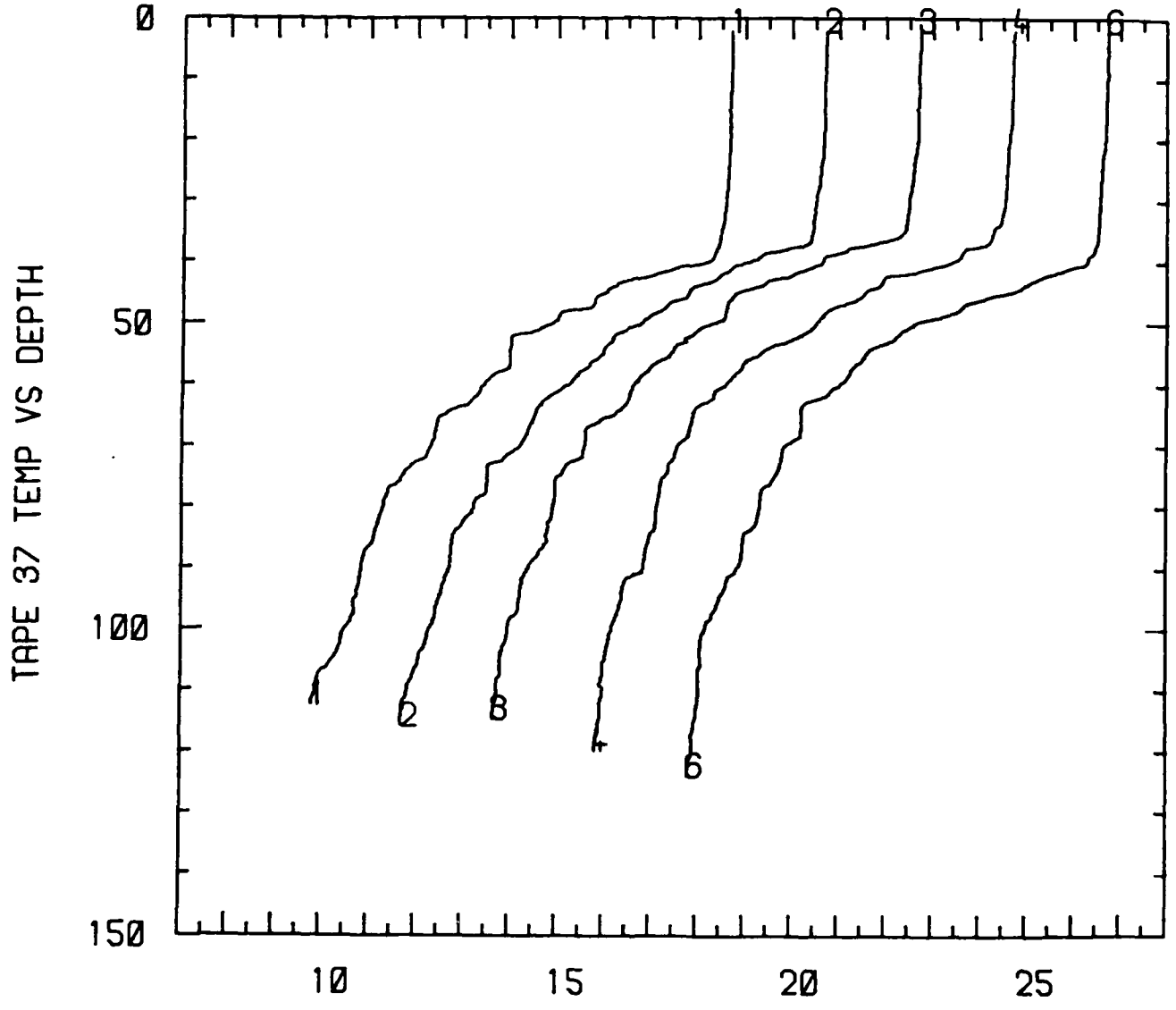
RSVP: UNIT 4 OCTOBER 28,1983 2120-2142 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 4.7 KNOTS



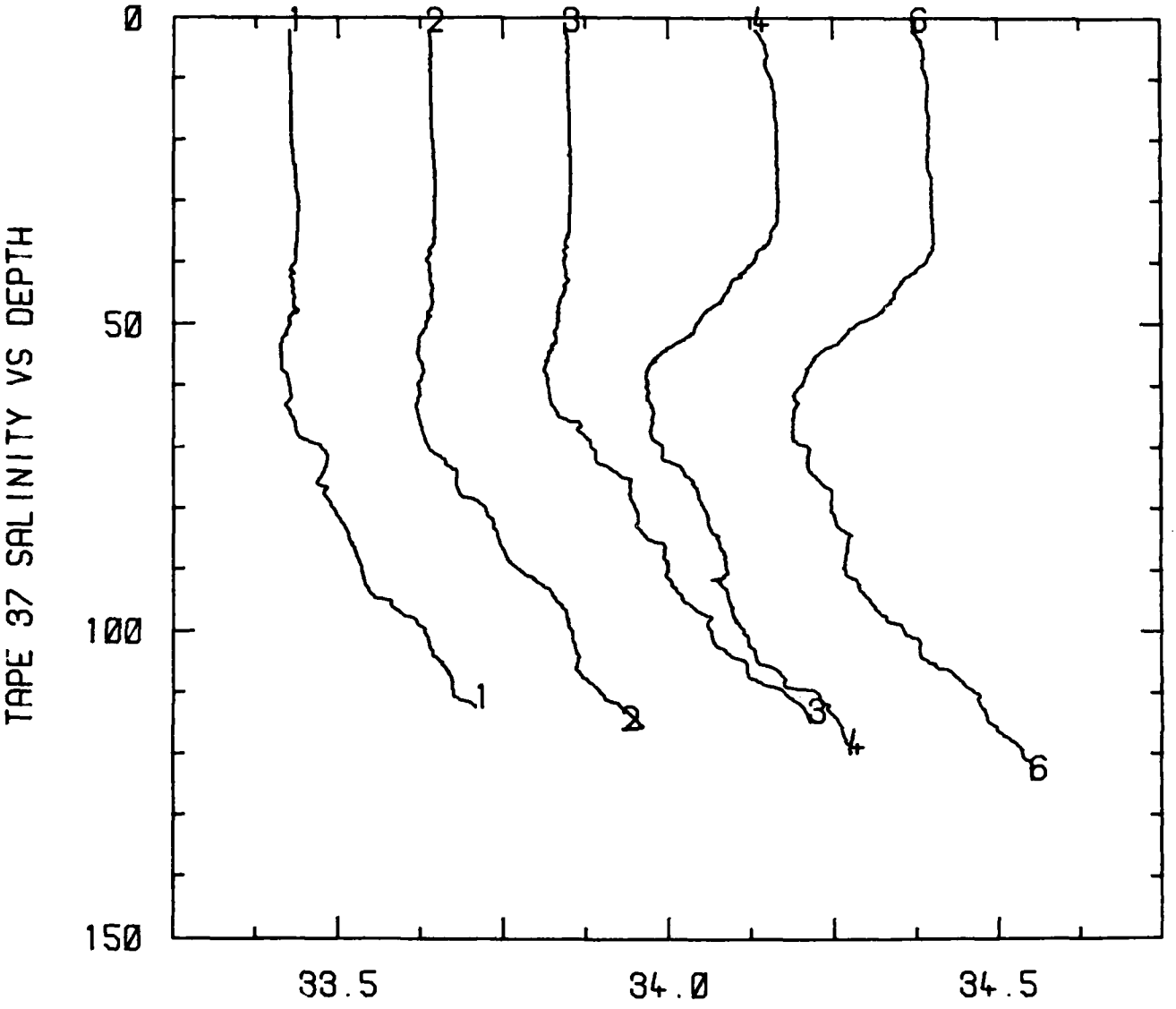
RSVP: UNIT 4 OCTOBER 28, 1983 2120 GMT



RSVP: UNITS 5 (1-3) AND 6 OCTOBER 31, 1983 2010-2109 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

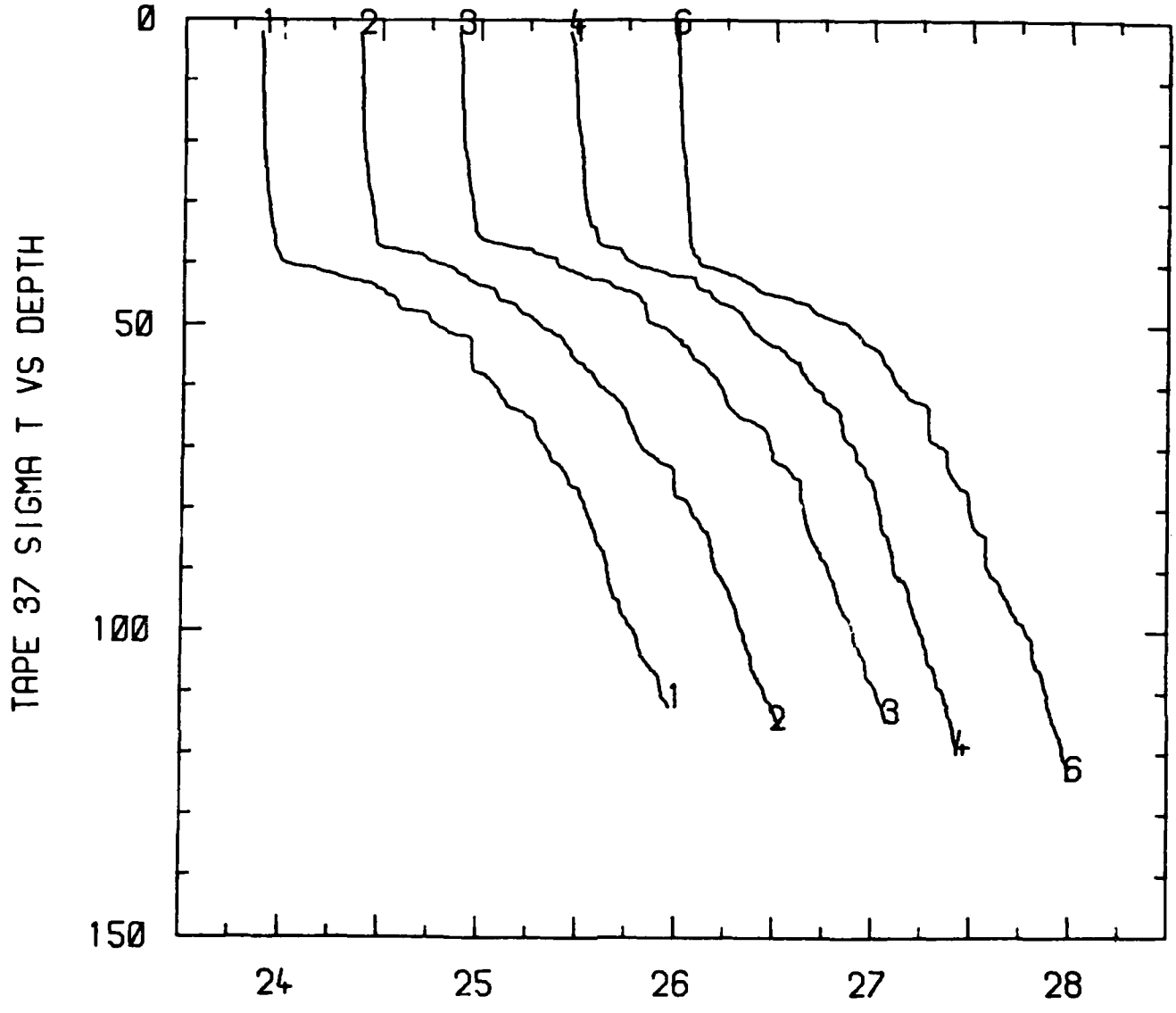
SHIP'S SPEED 5.2 KNOTS



RSVP: UNITS 5 (1-3) AND 6 OCTOBER 31, 1983 2010-2109 GMT

OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

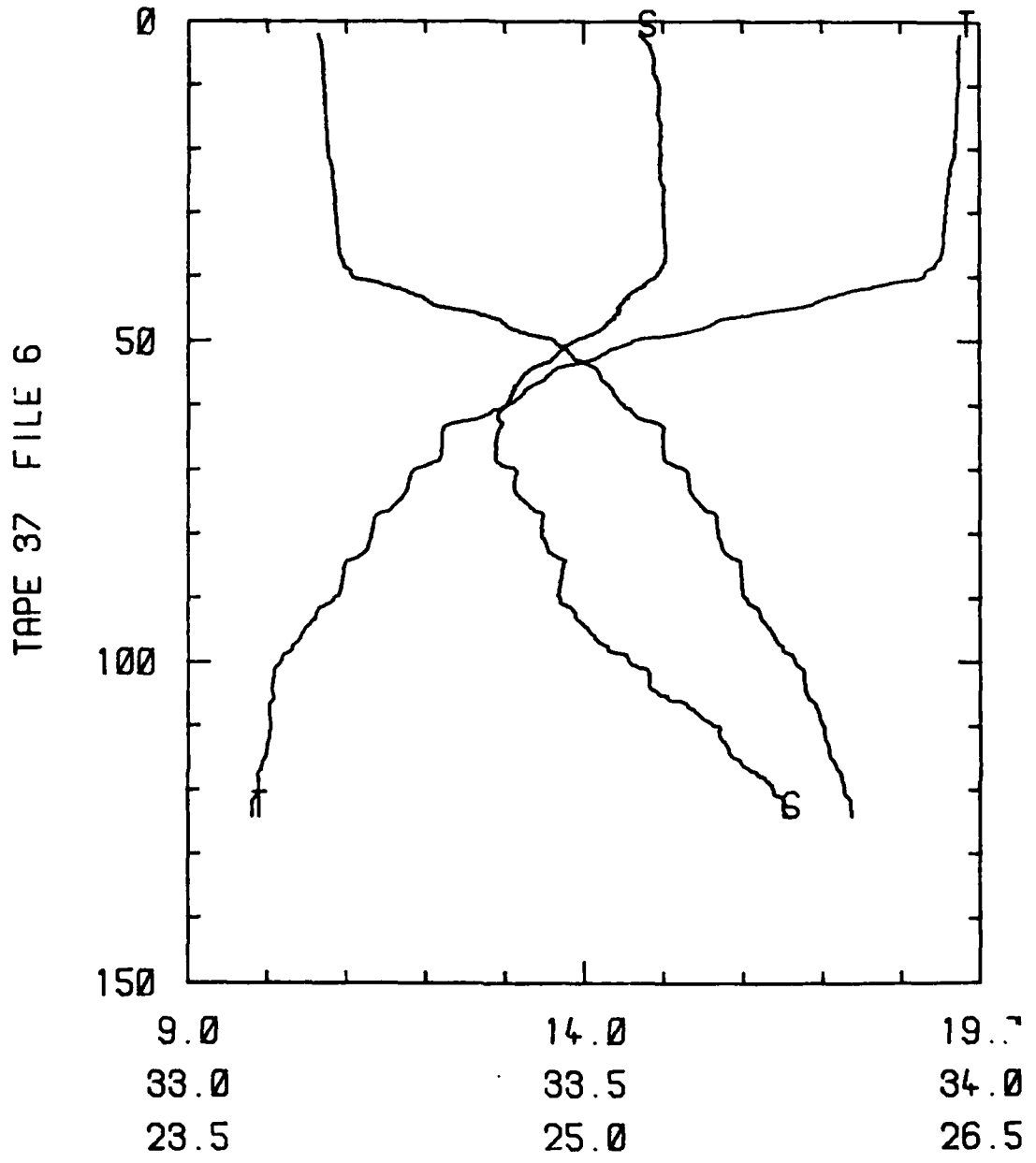
SHIP'S SPEED 5.2 KNOTS



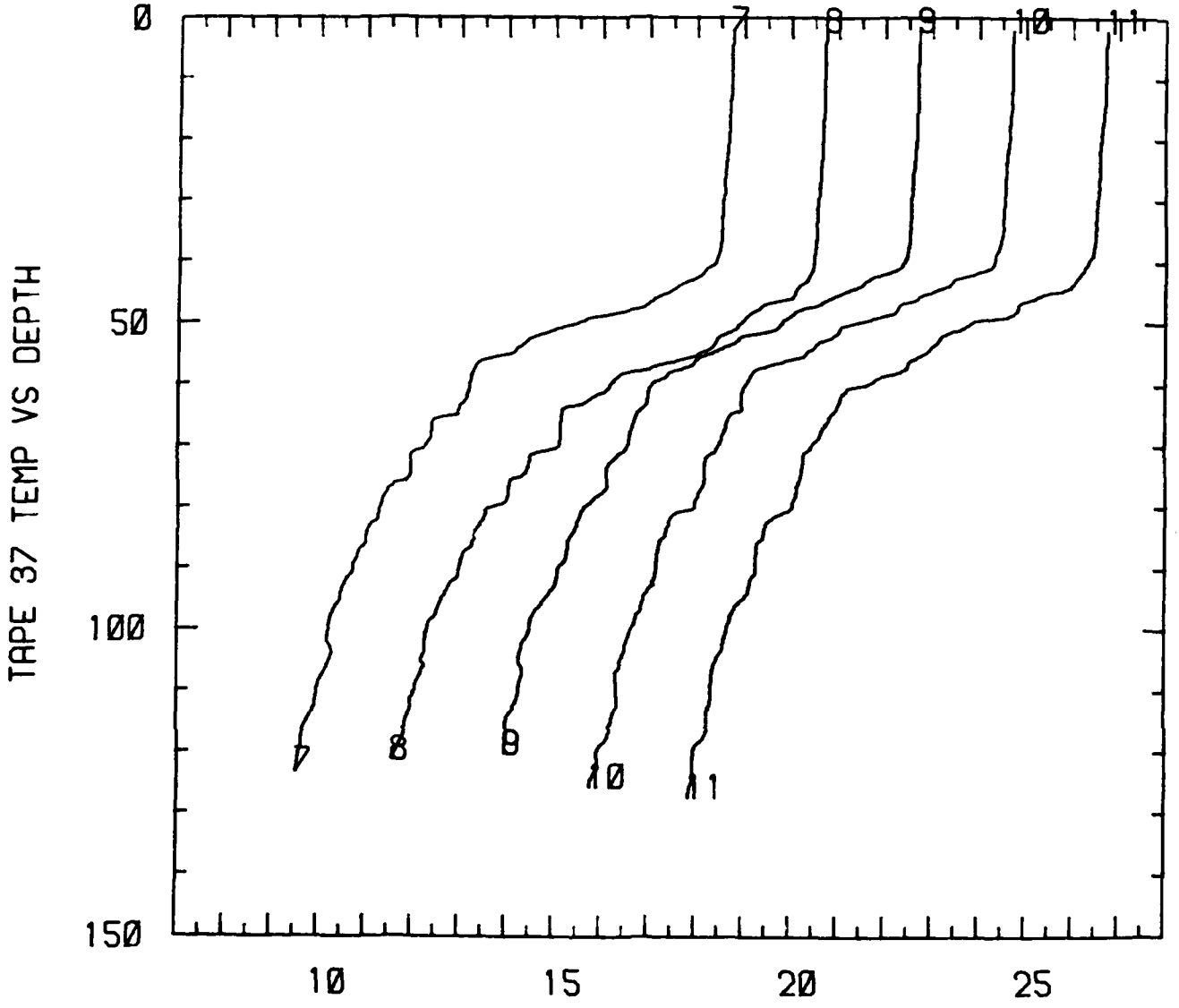
RSVP: UNITS 5 (1-3) AND 6 OCTOBER 31, 1983 2010-2109 GMT

OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 5.2 KNOTS



RSVP: UNIT 6 OCTOBER 31, 1983 2104 GMT



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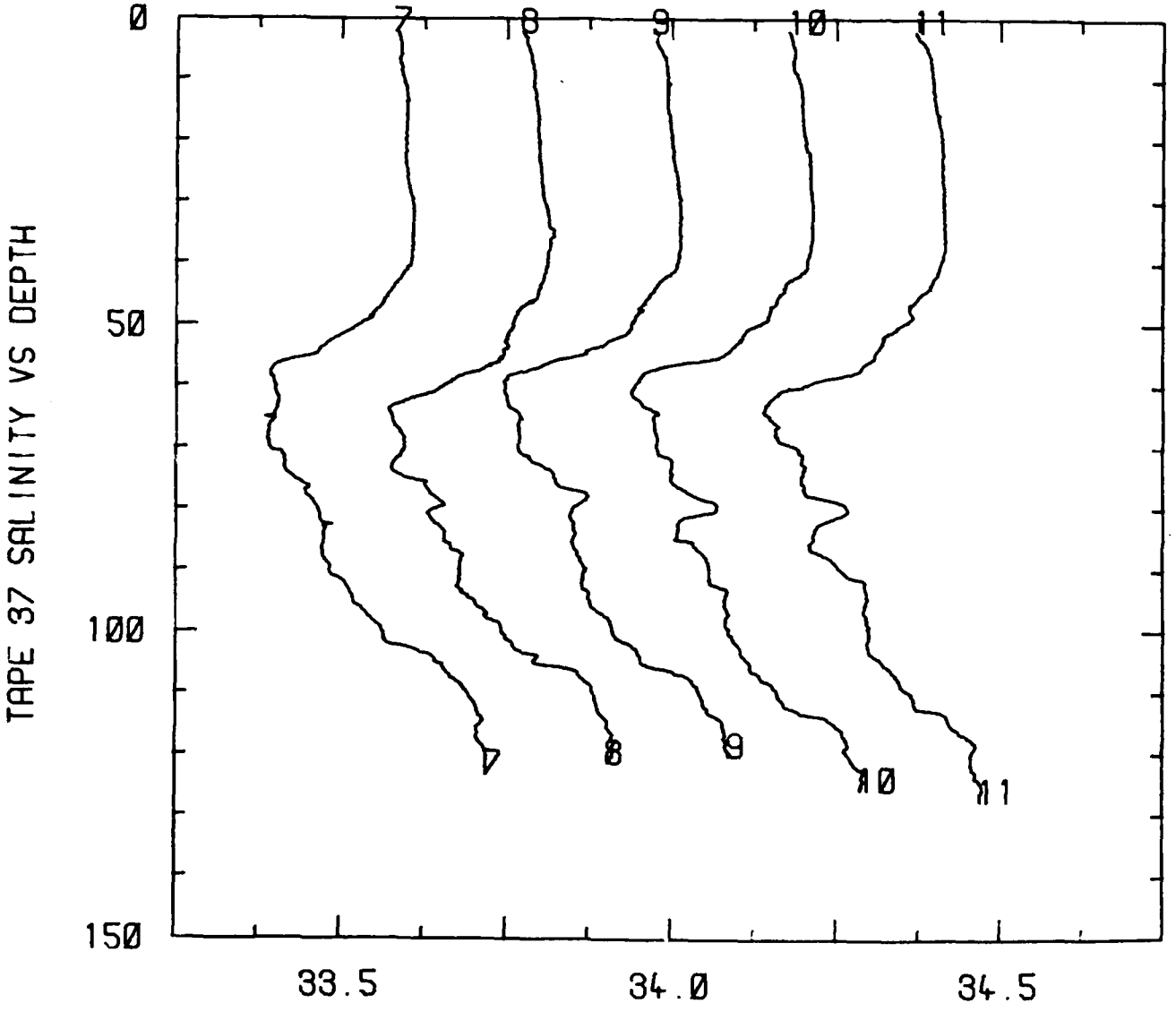
SHIP'S SPEED 5.2 KNOTS



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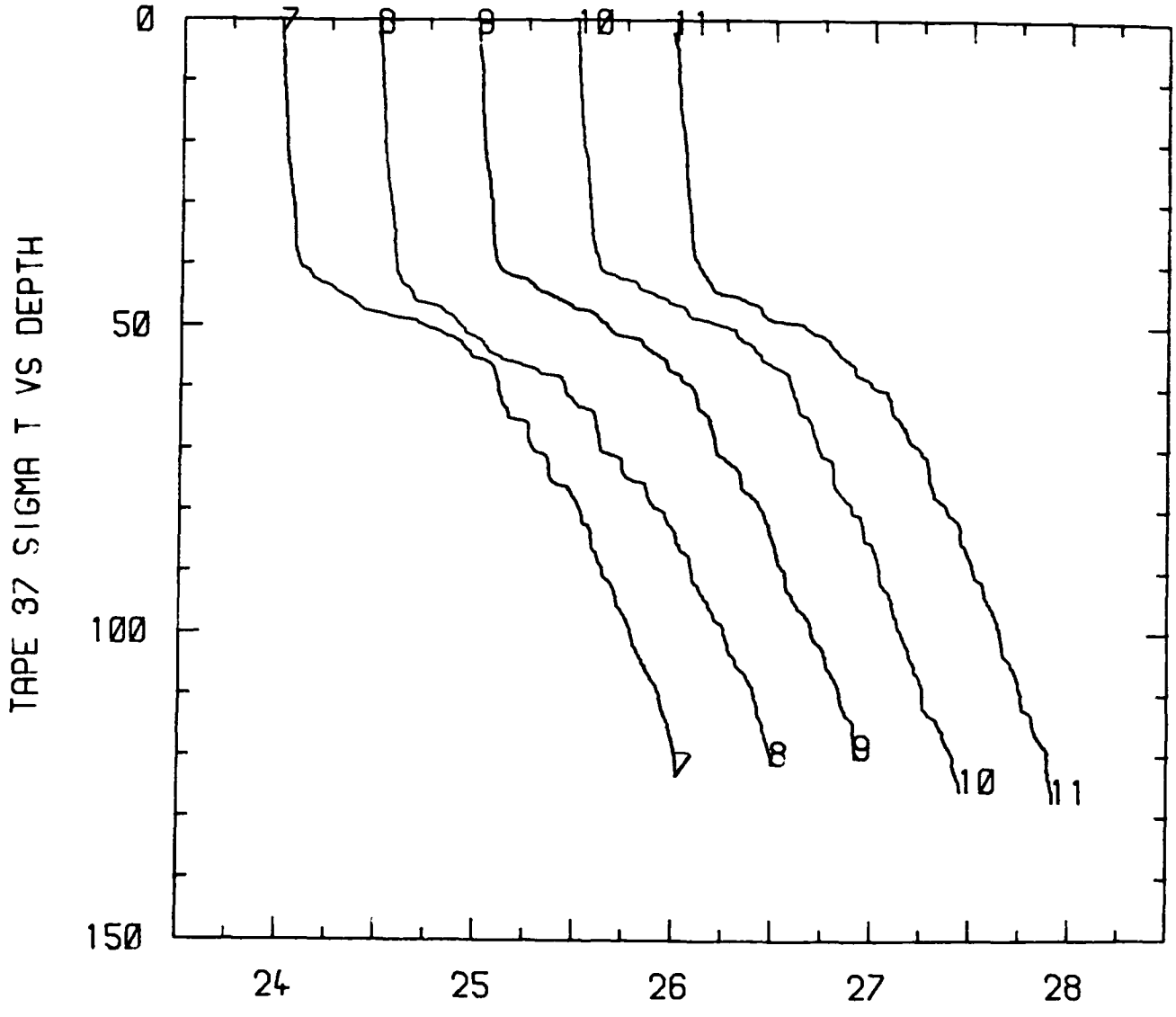
OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

SHIP'S SPEED 5.2 KNOTS



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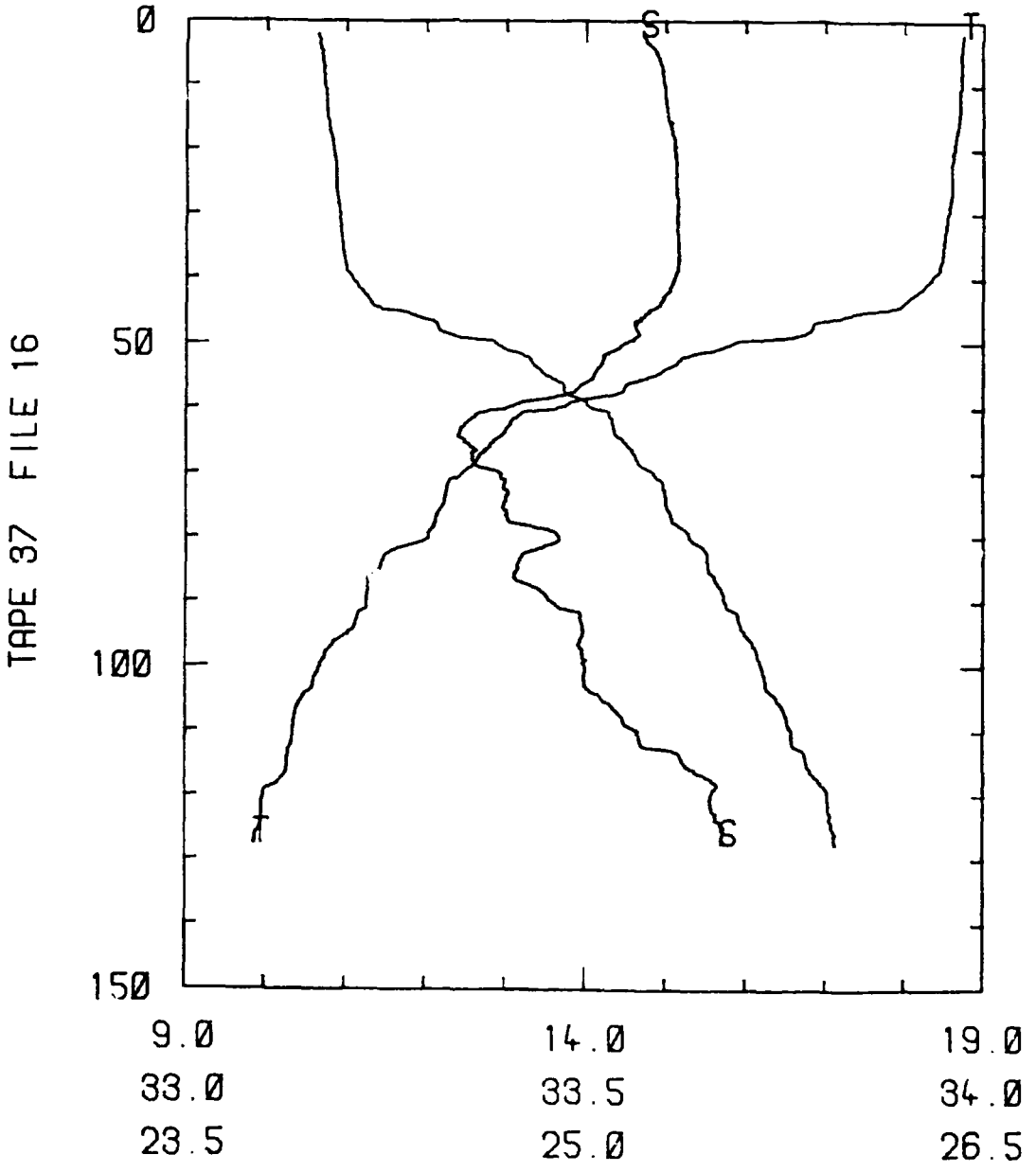
OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

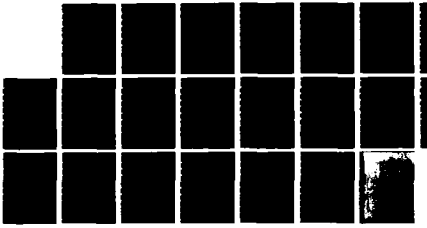
SHIP'S SPEED 5 2 KNOTS

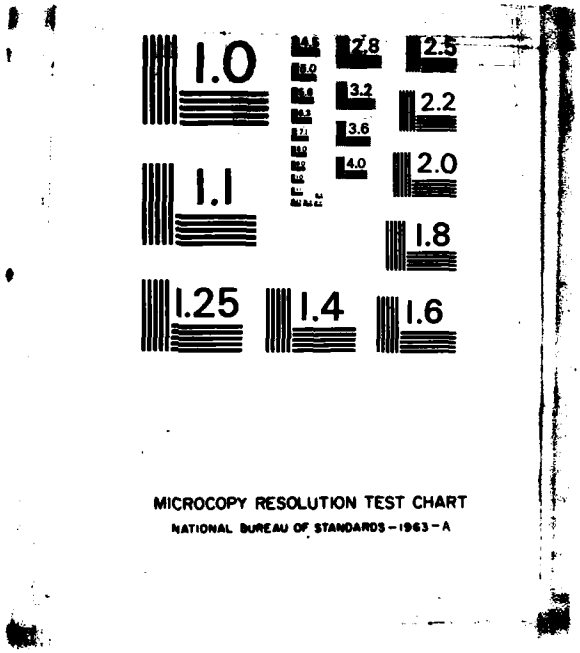


RSVP: UNIT 6 OCTOBER 31, 1983 2144 GMT

AD-A140 965 THE RAPID SAMPLING VERTICAL PROFILER MILDEX OCTOBER-NOVEMBER 1983(U) OREGON STATE UNIV CORVALLIS SCHOOL OF OCEANOGRAPHY P A NEWBERGER ET AL. MAR 84 2/2

UNCLASSIFIED DATA-107 N00014-79-C-0004 F/G 8/10 NL

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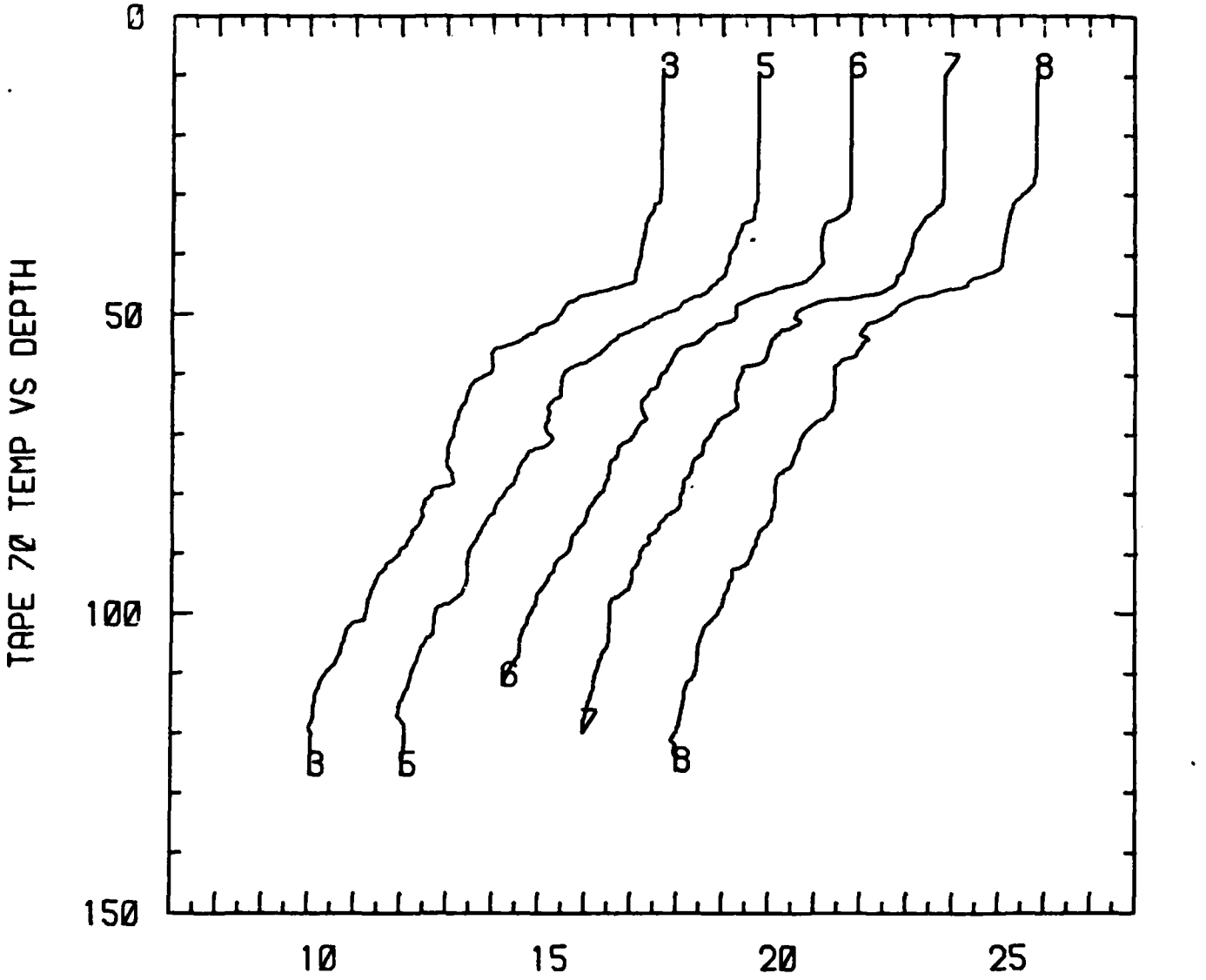
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS - 1963 - A



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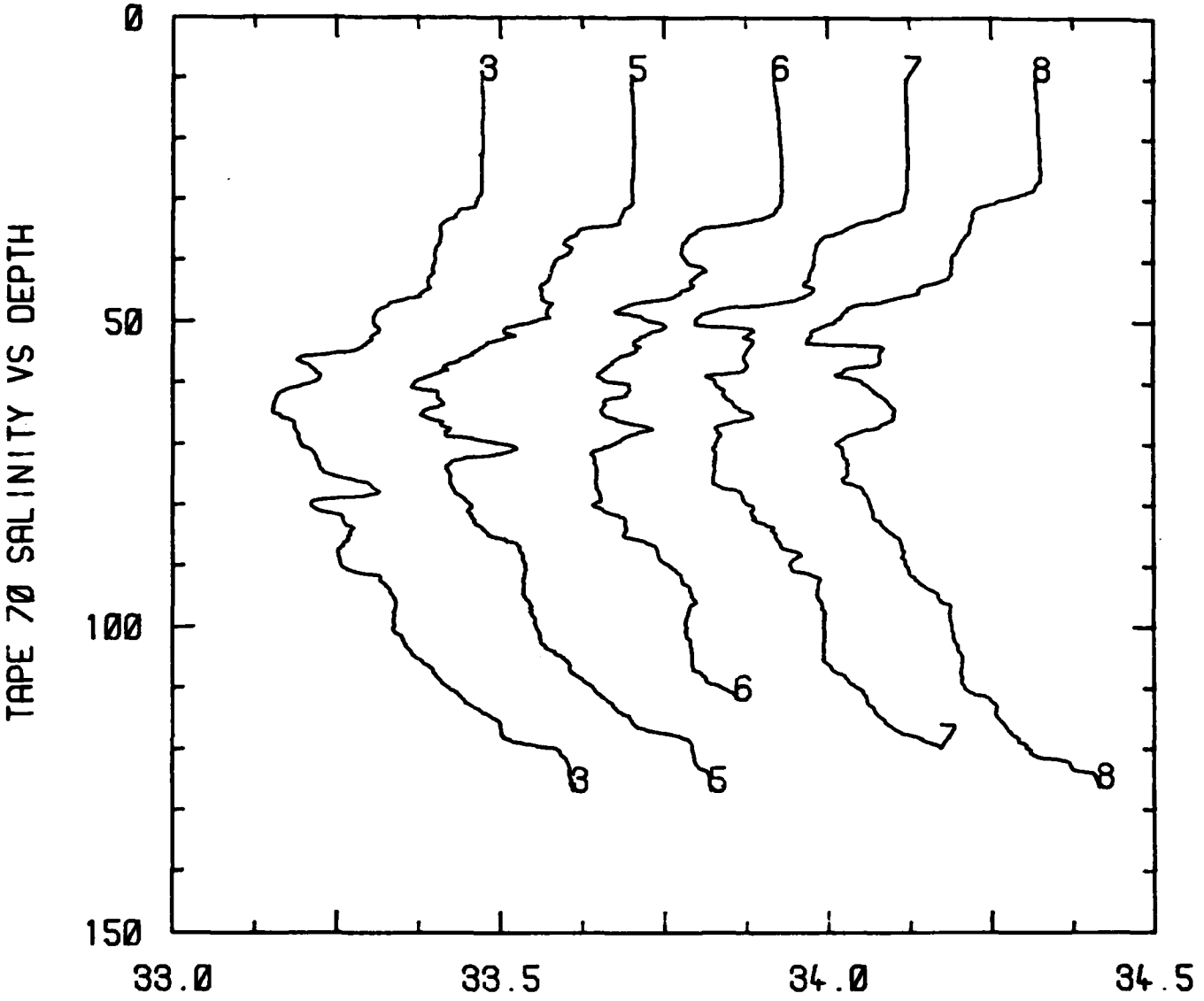

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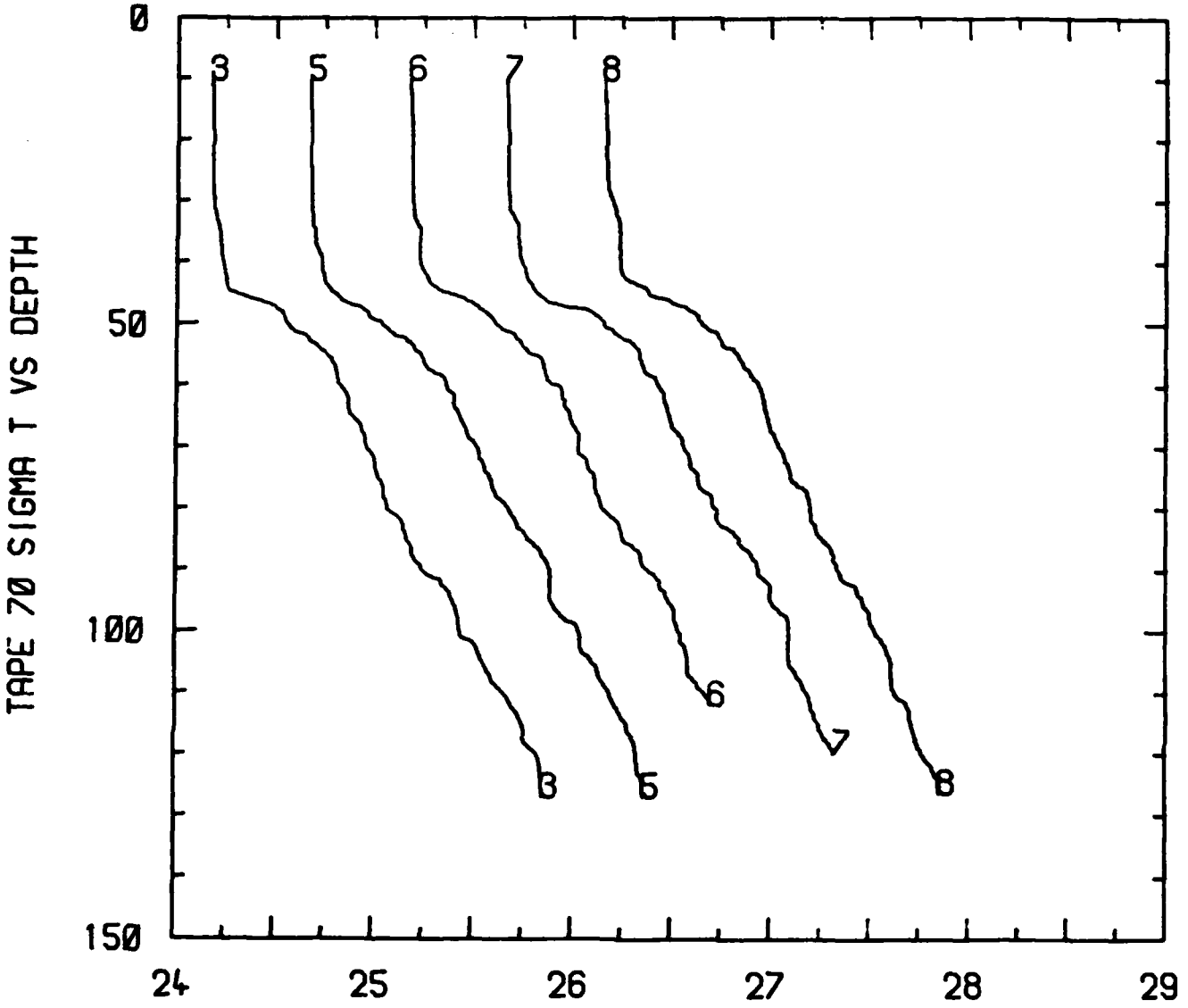
SHIP'S SPEED 5.4 KNOTS



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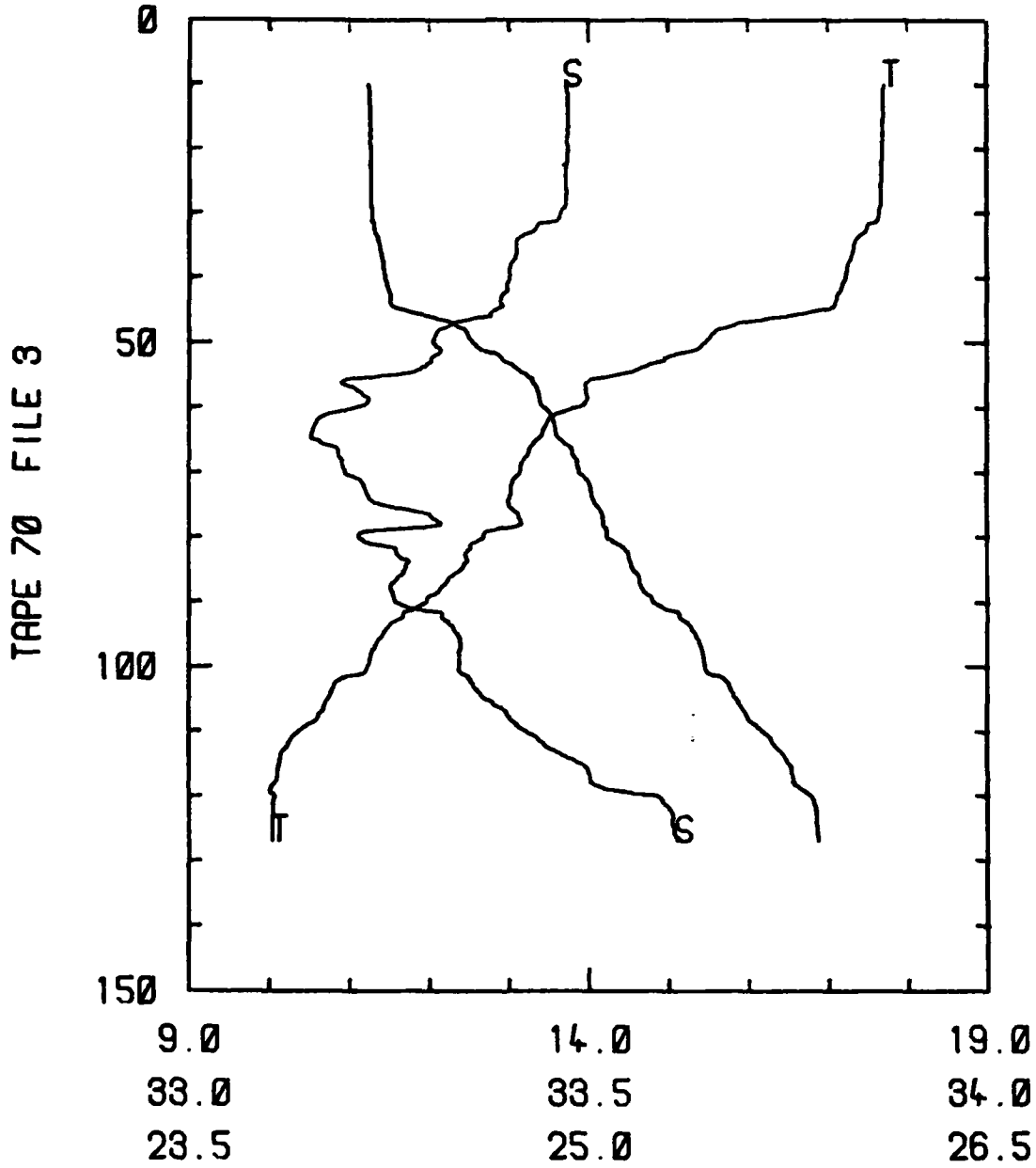
OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

SHIP'S SPEED 5.4 KNOTS



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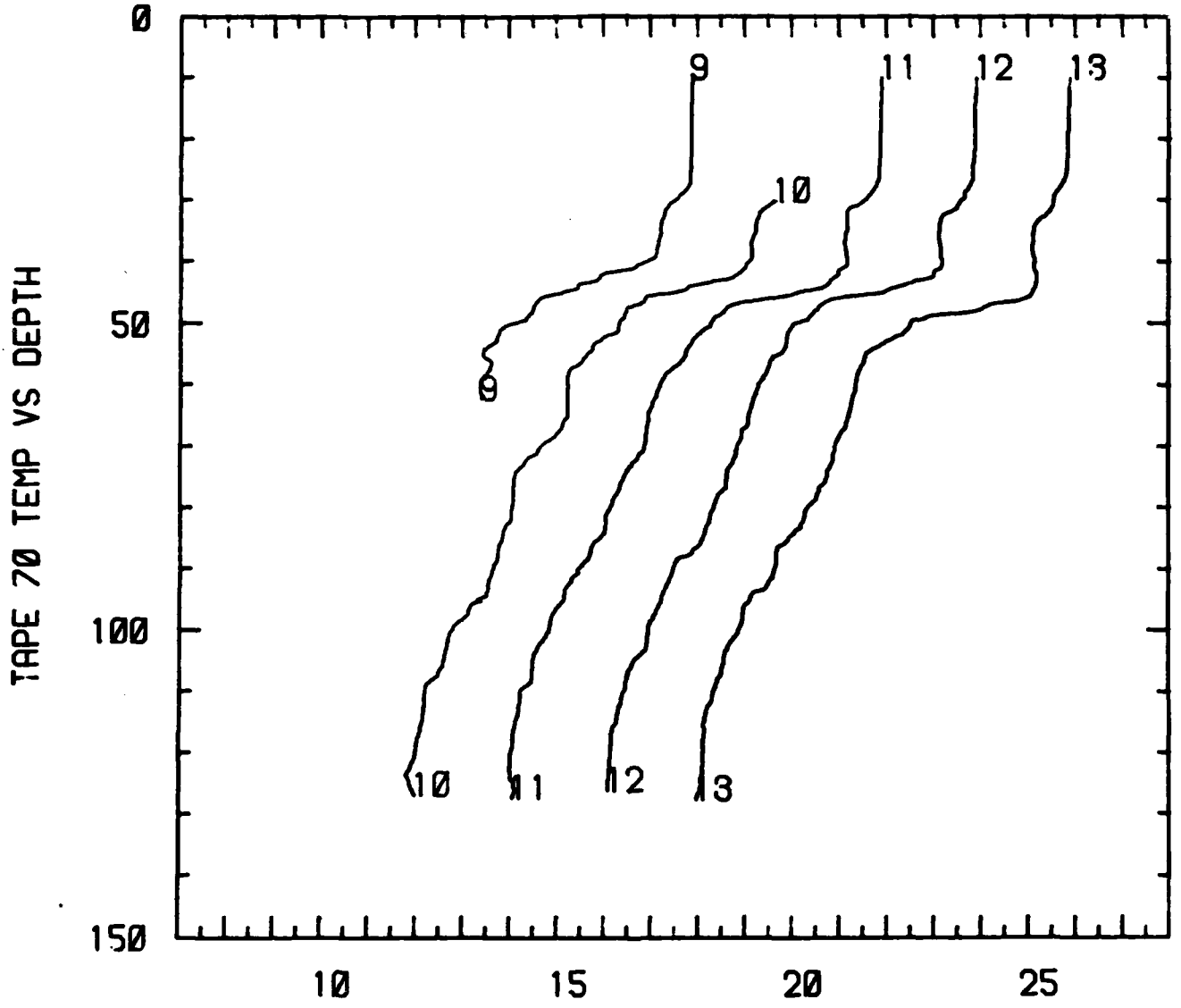

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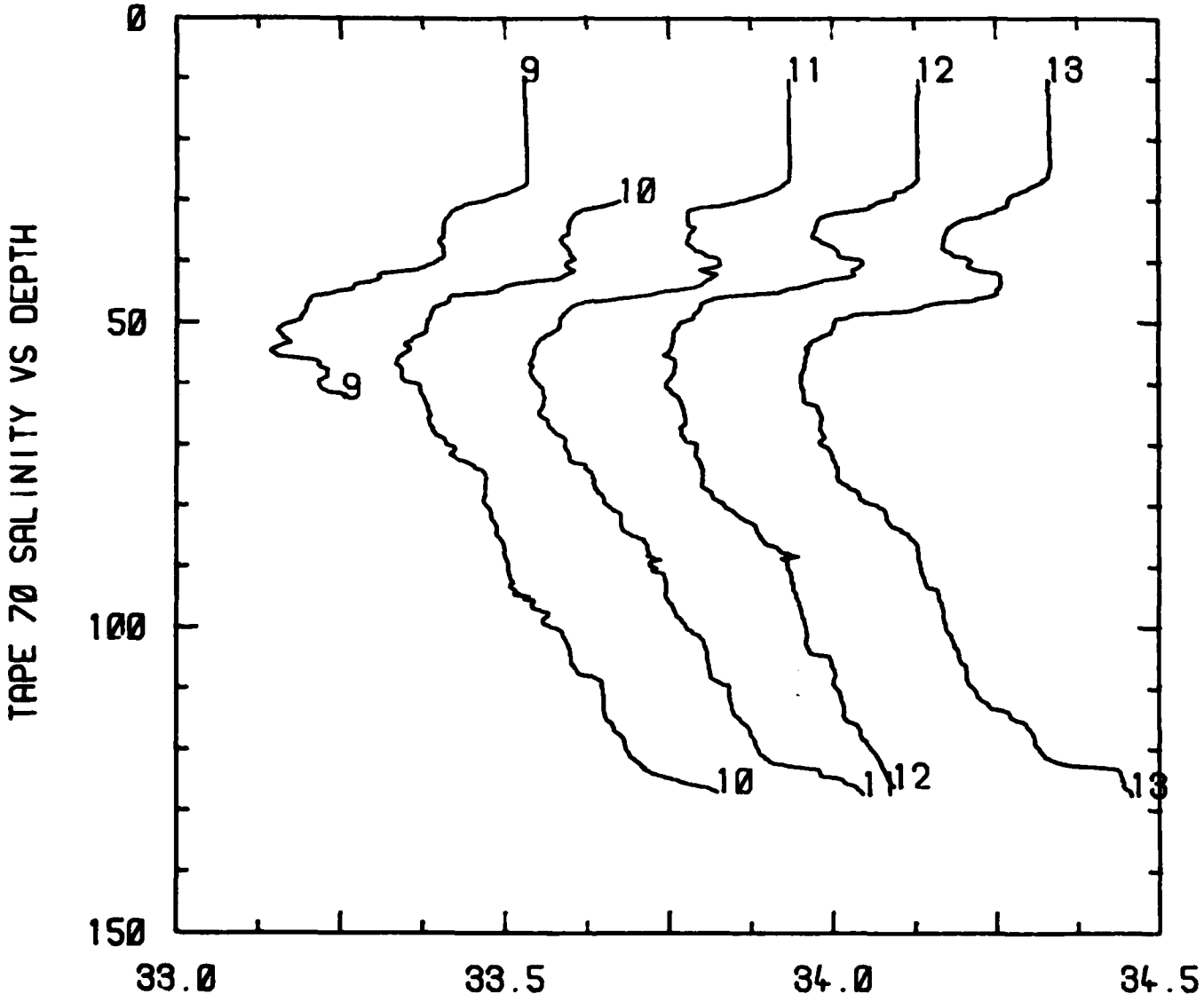
OFFSET BETWEEN PROFILES: 2.0 DEGREES

SHIP'S SPEED 5.4 KNOTS



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OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

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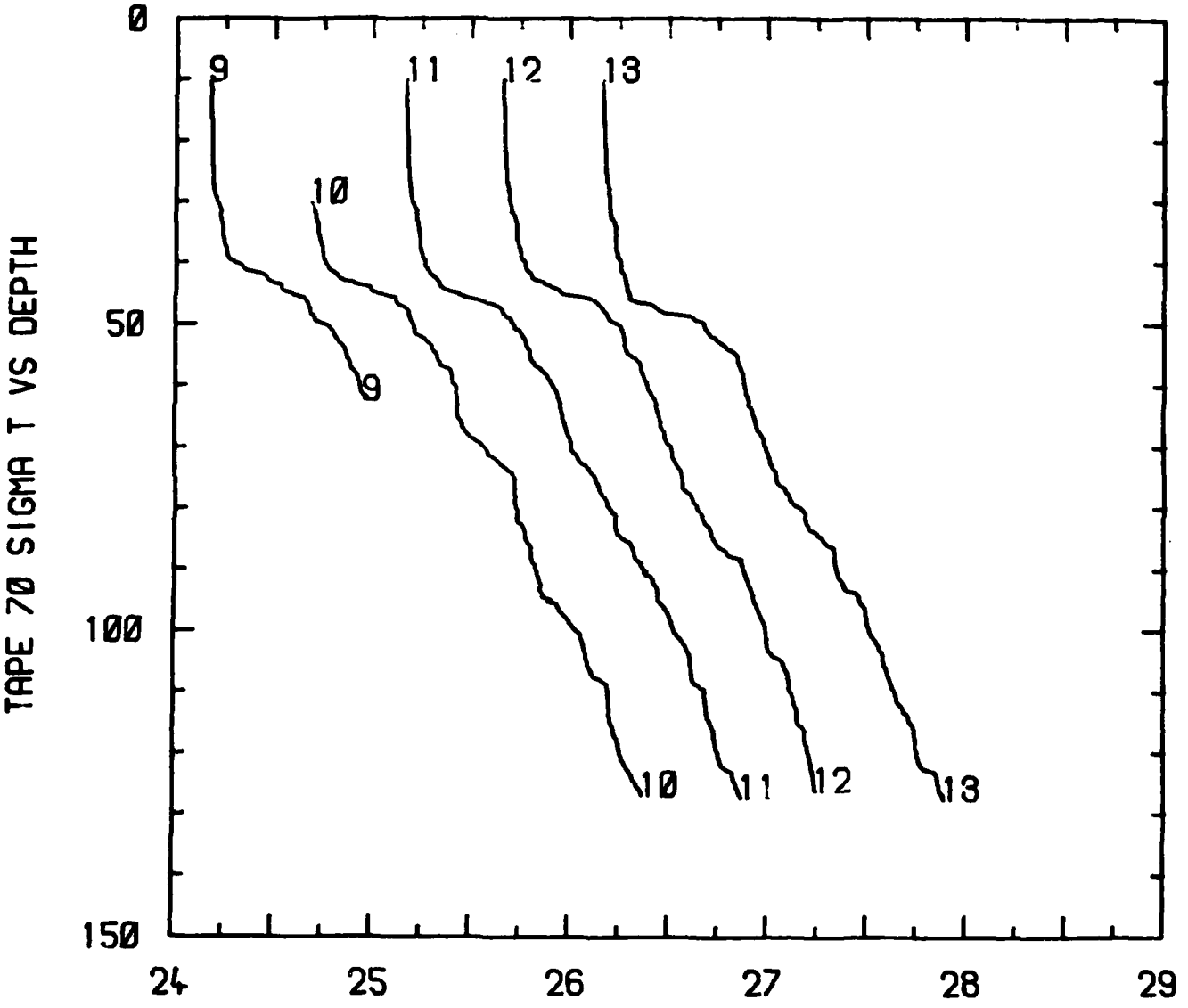

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OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

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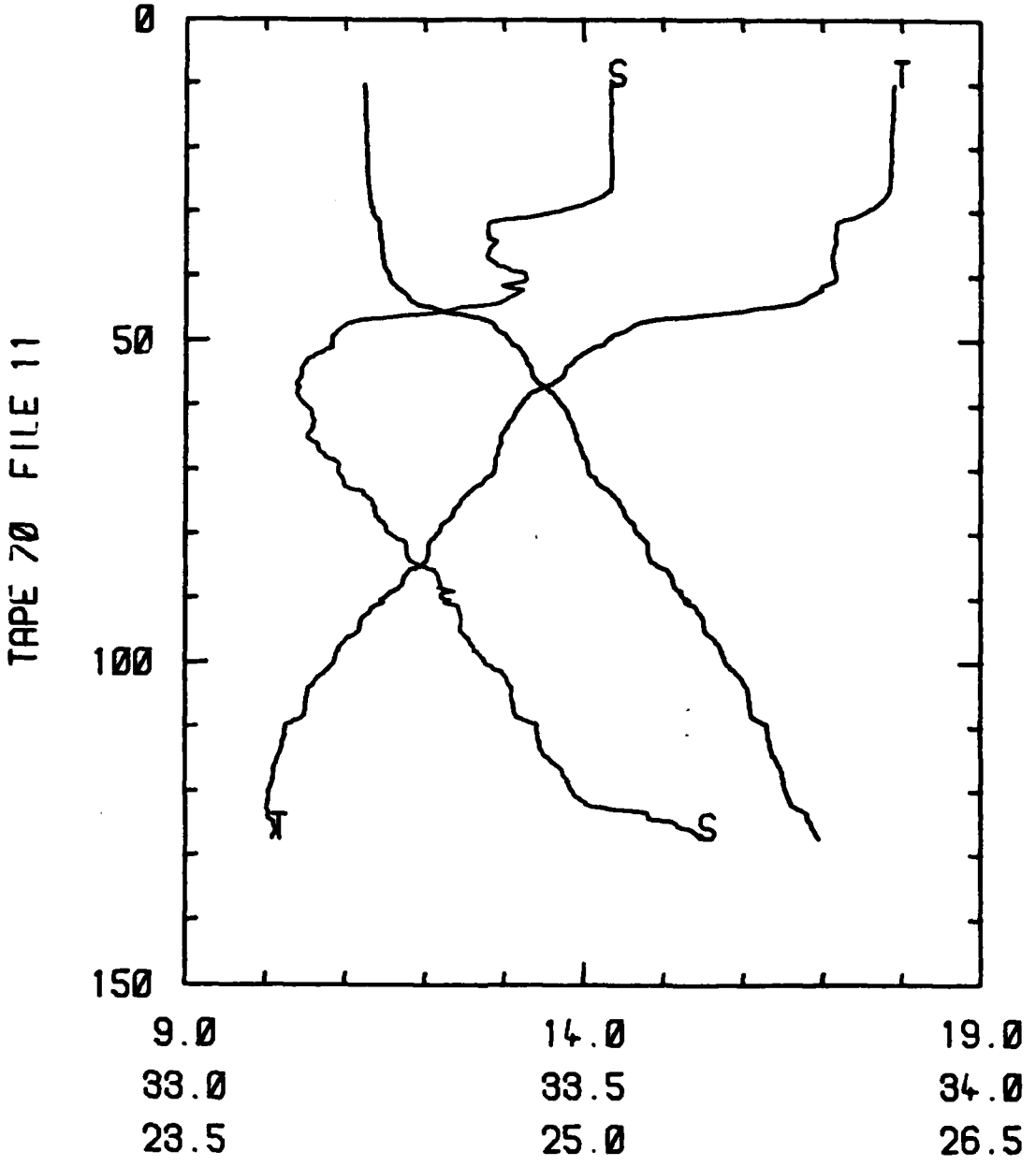

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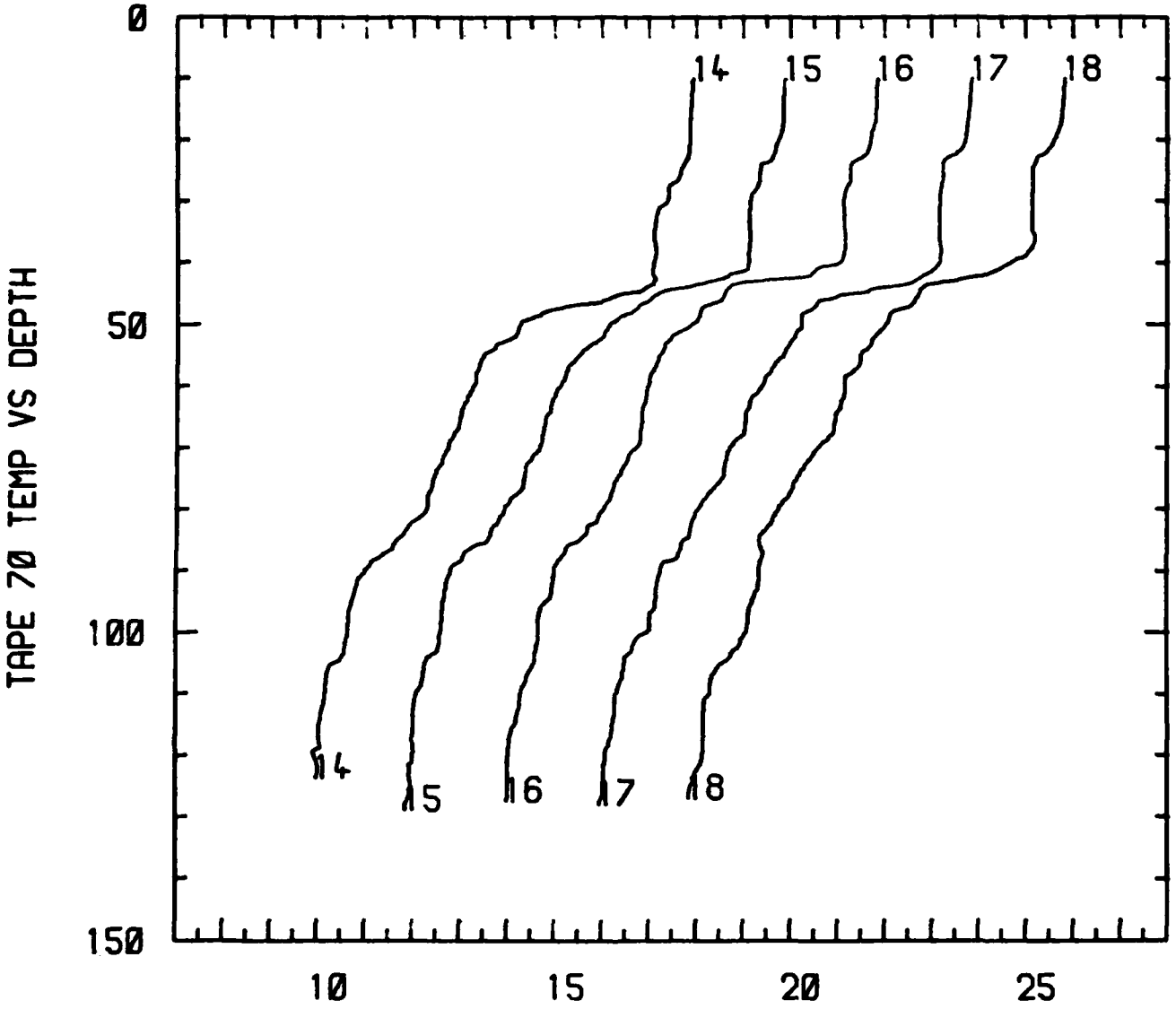
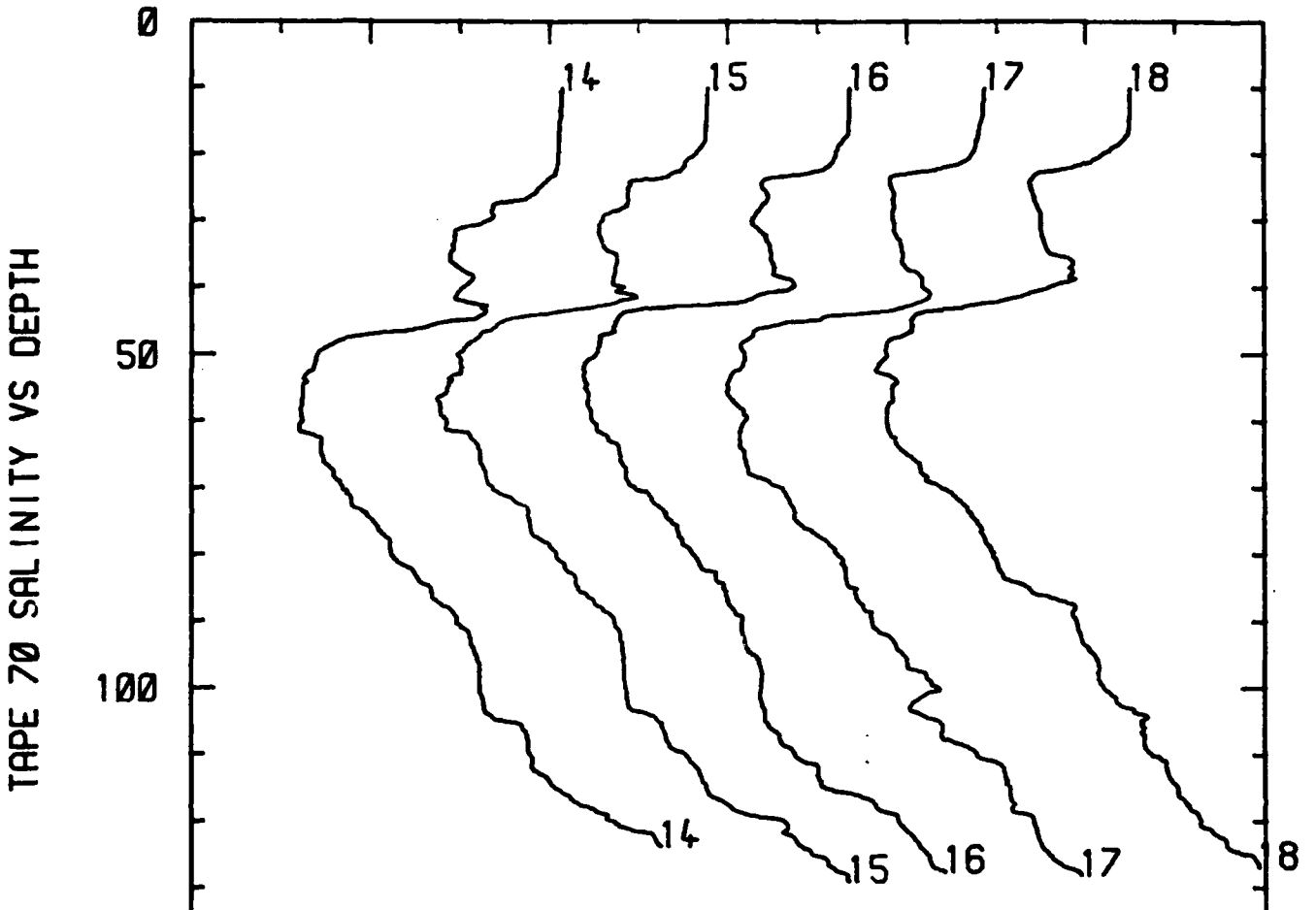


RSVP: UNIT 5 NOVEMBER 14, 1983 2130-2201 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

SHIP'S SPEED 5.4 KNOTS



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OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

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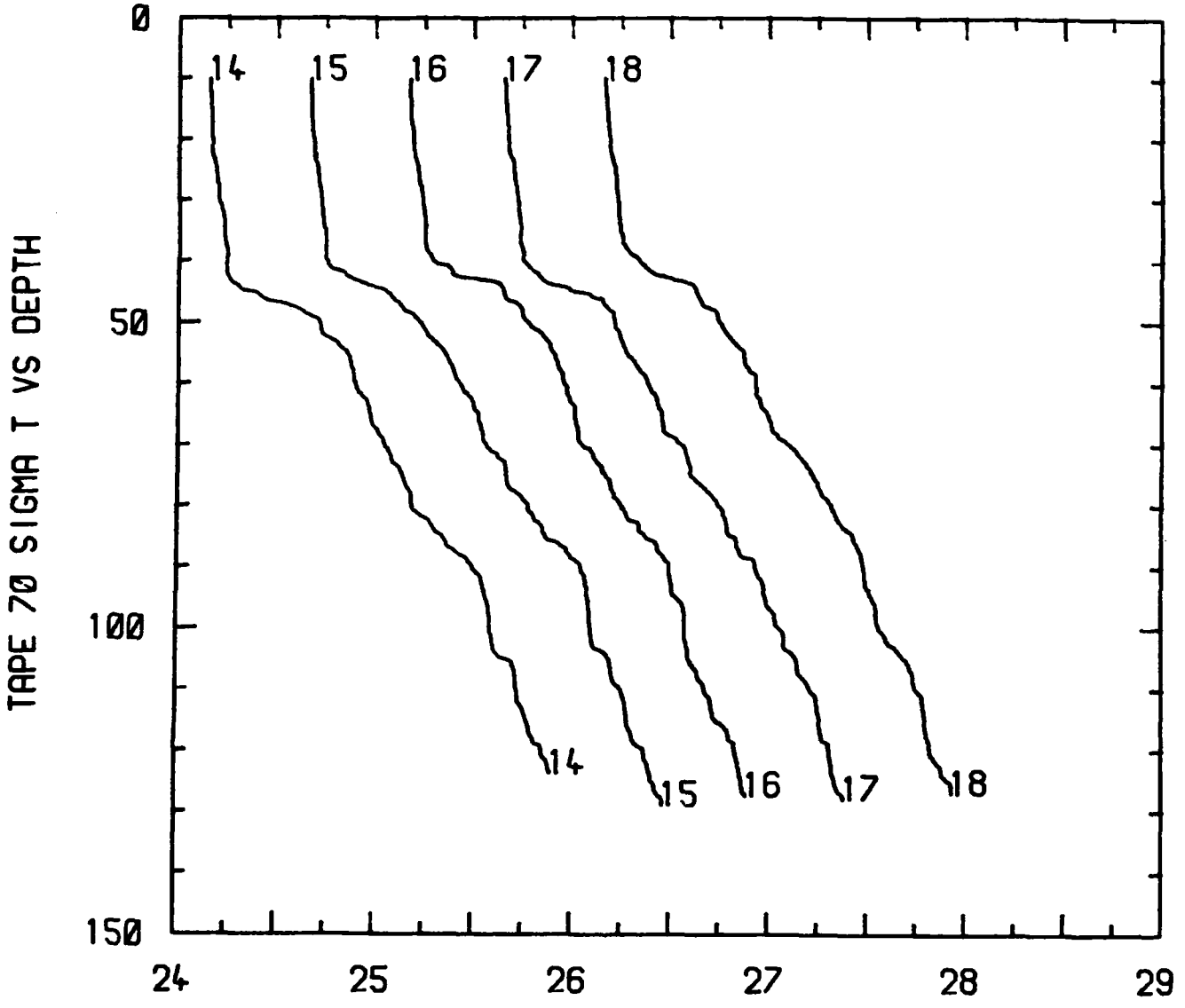

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OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

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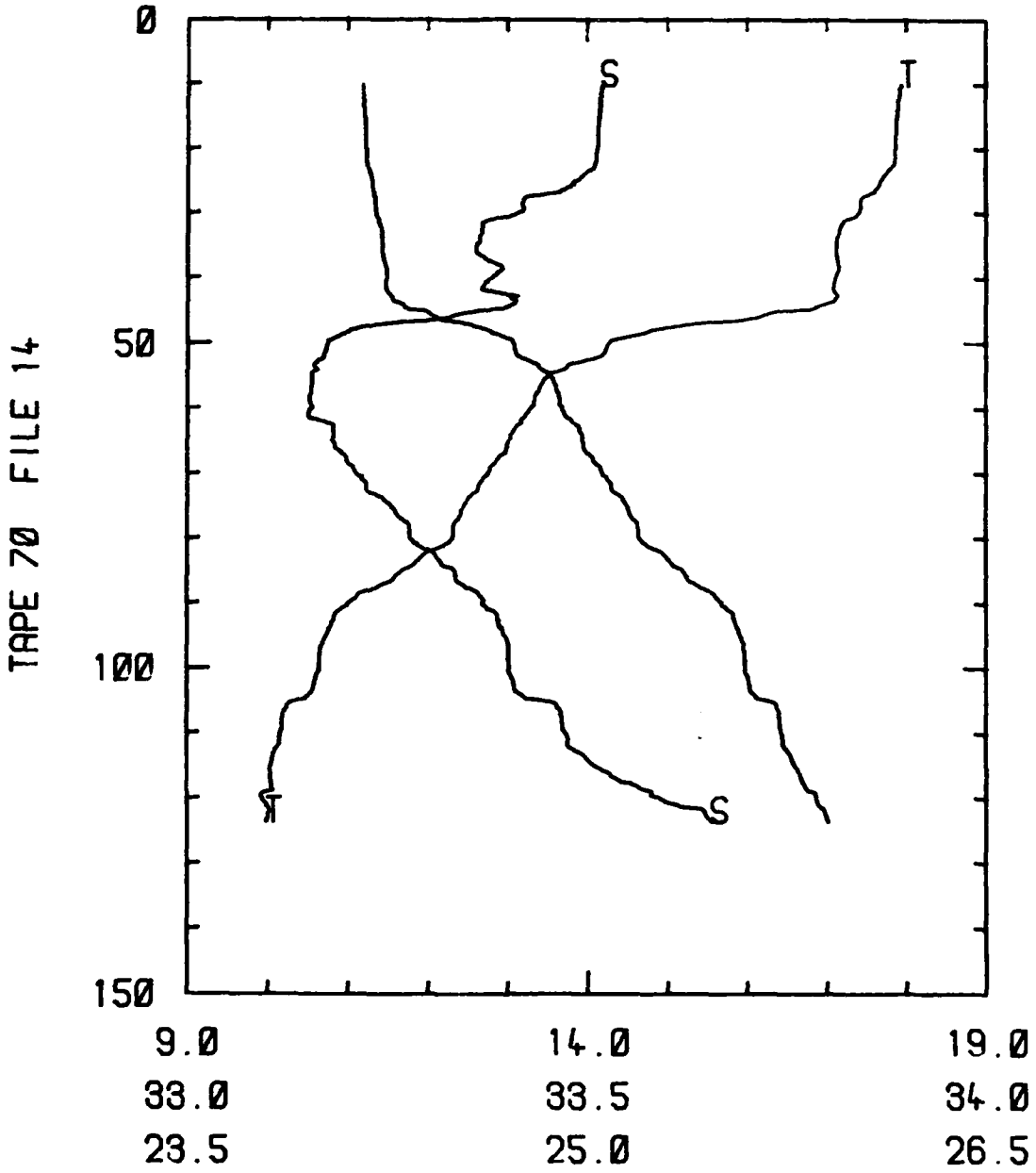

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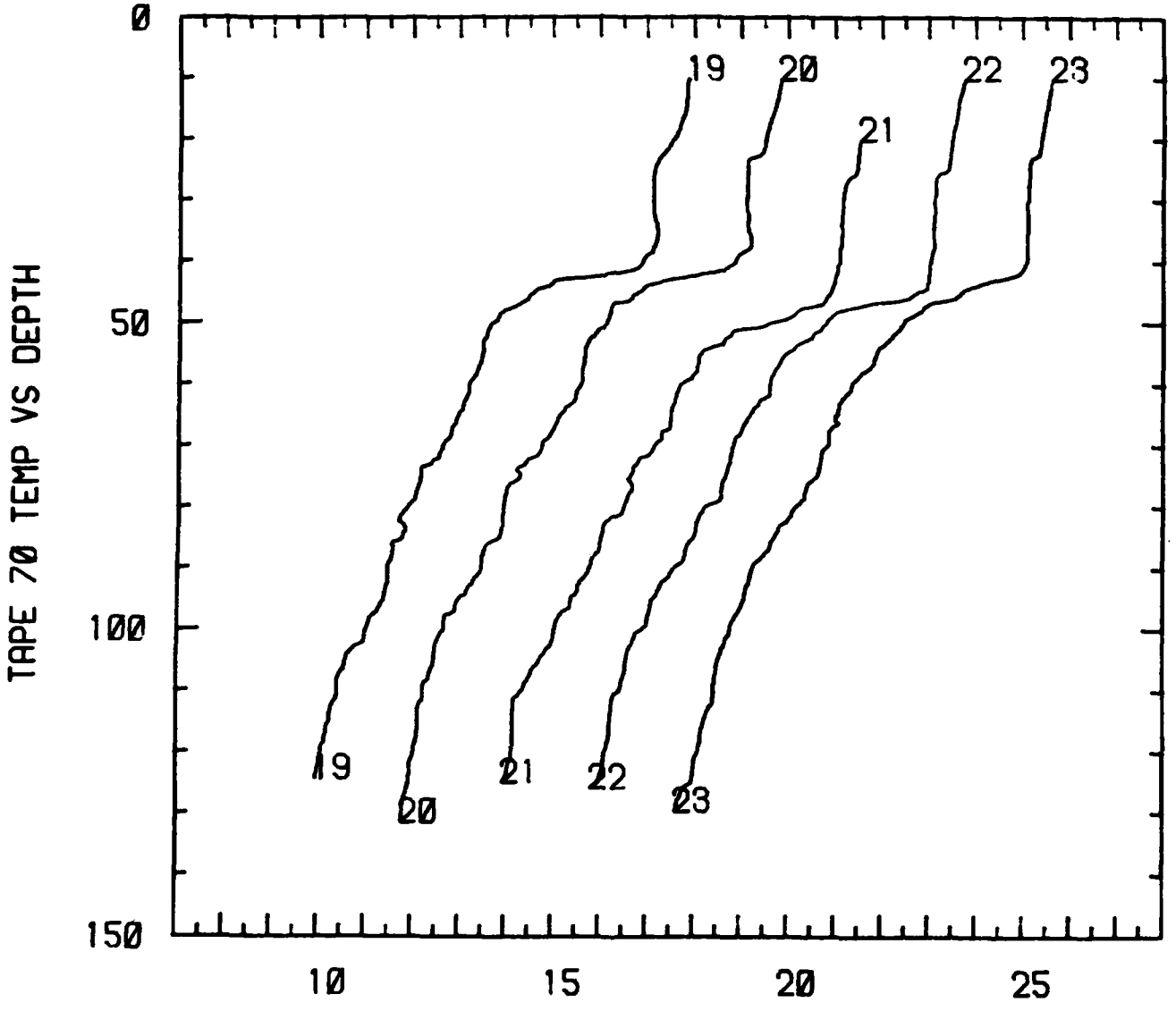
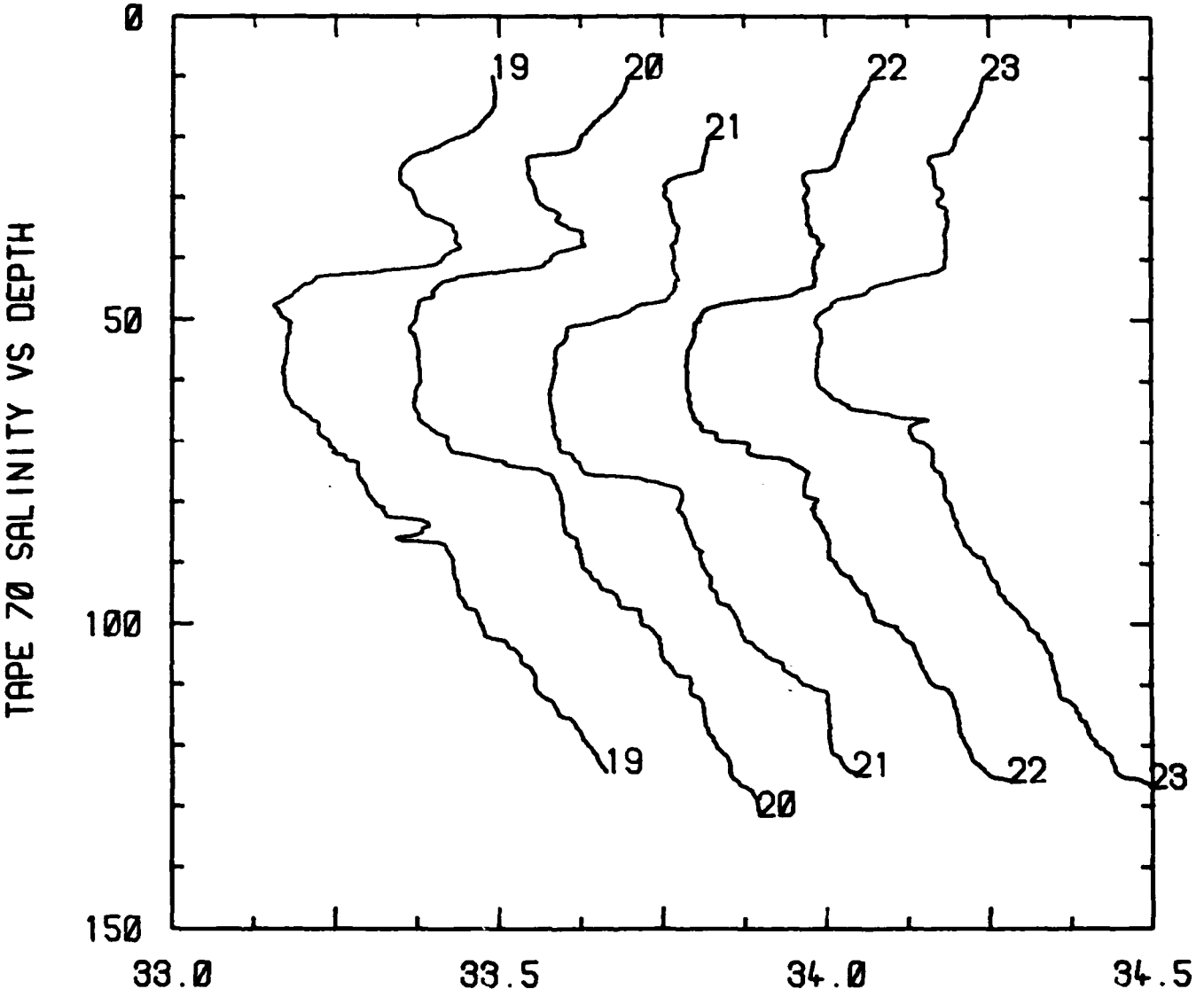


RSVP: UNIT 5 NOVEMBER 14, 1983 2203-2233 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

SHIP'S SPEED 5.4 KNOTS



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OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

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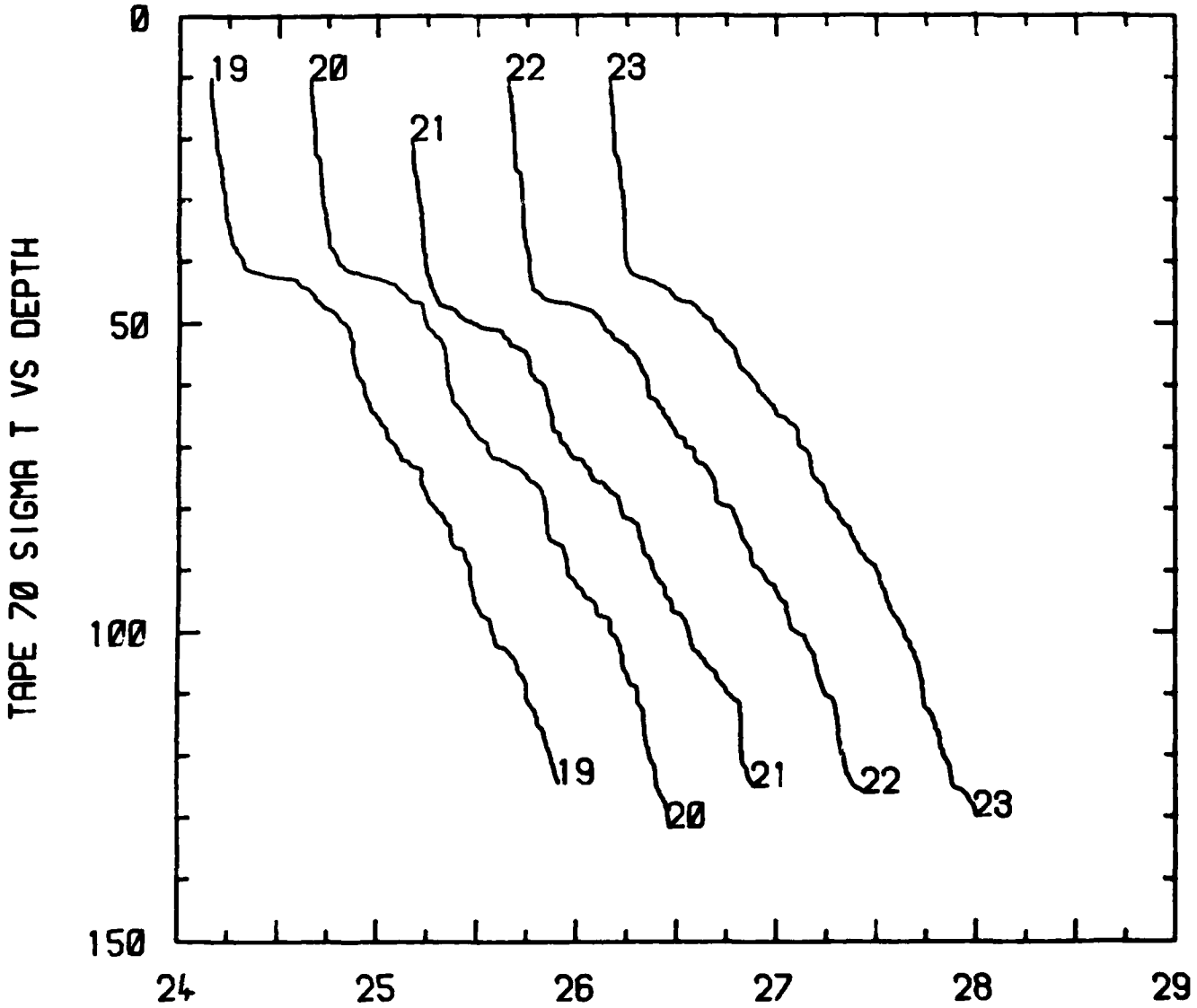

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OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

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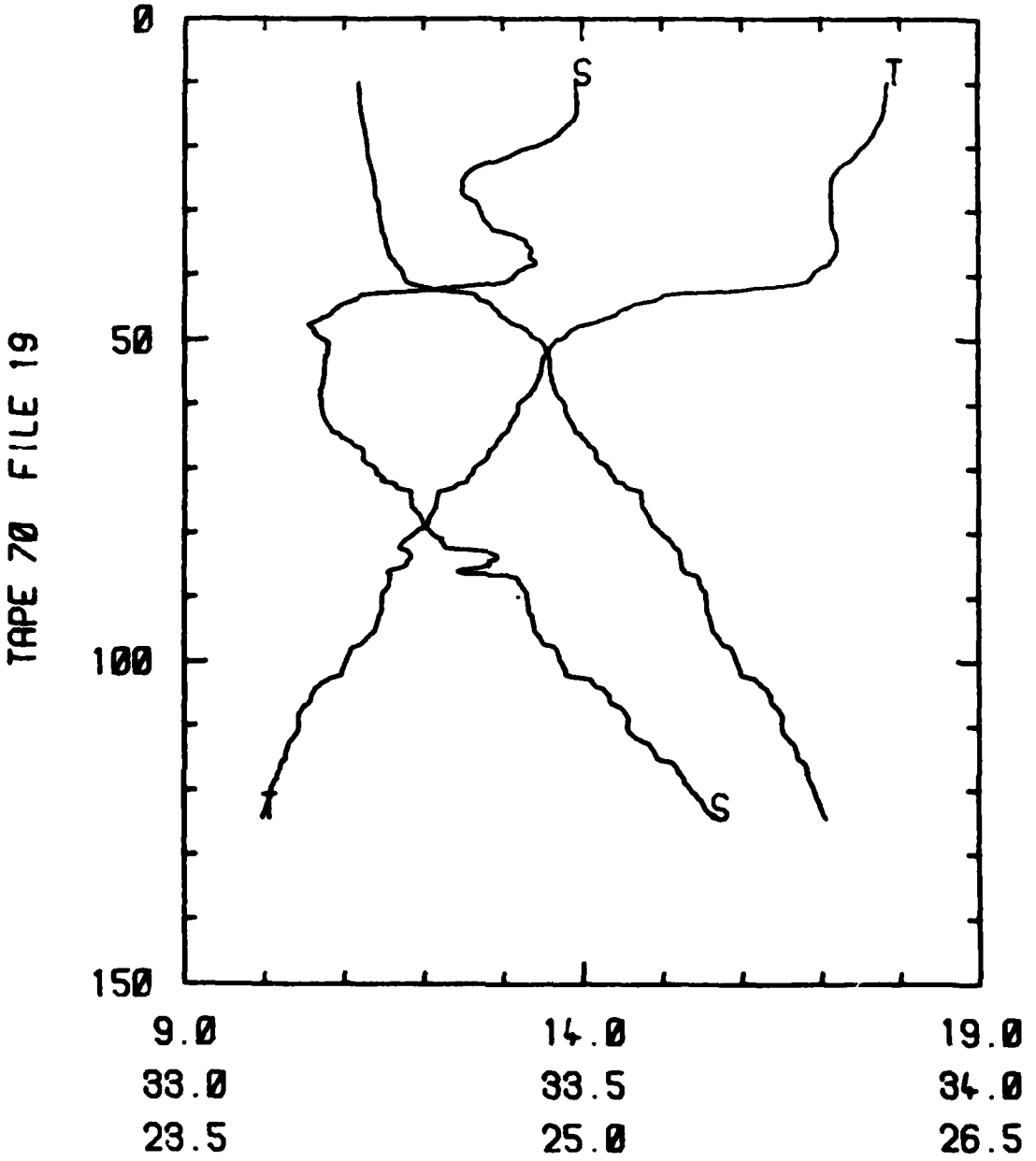

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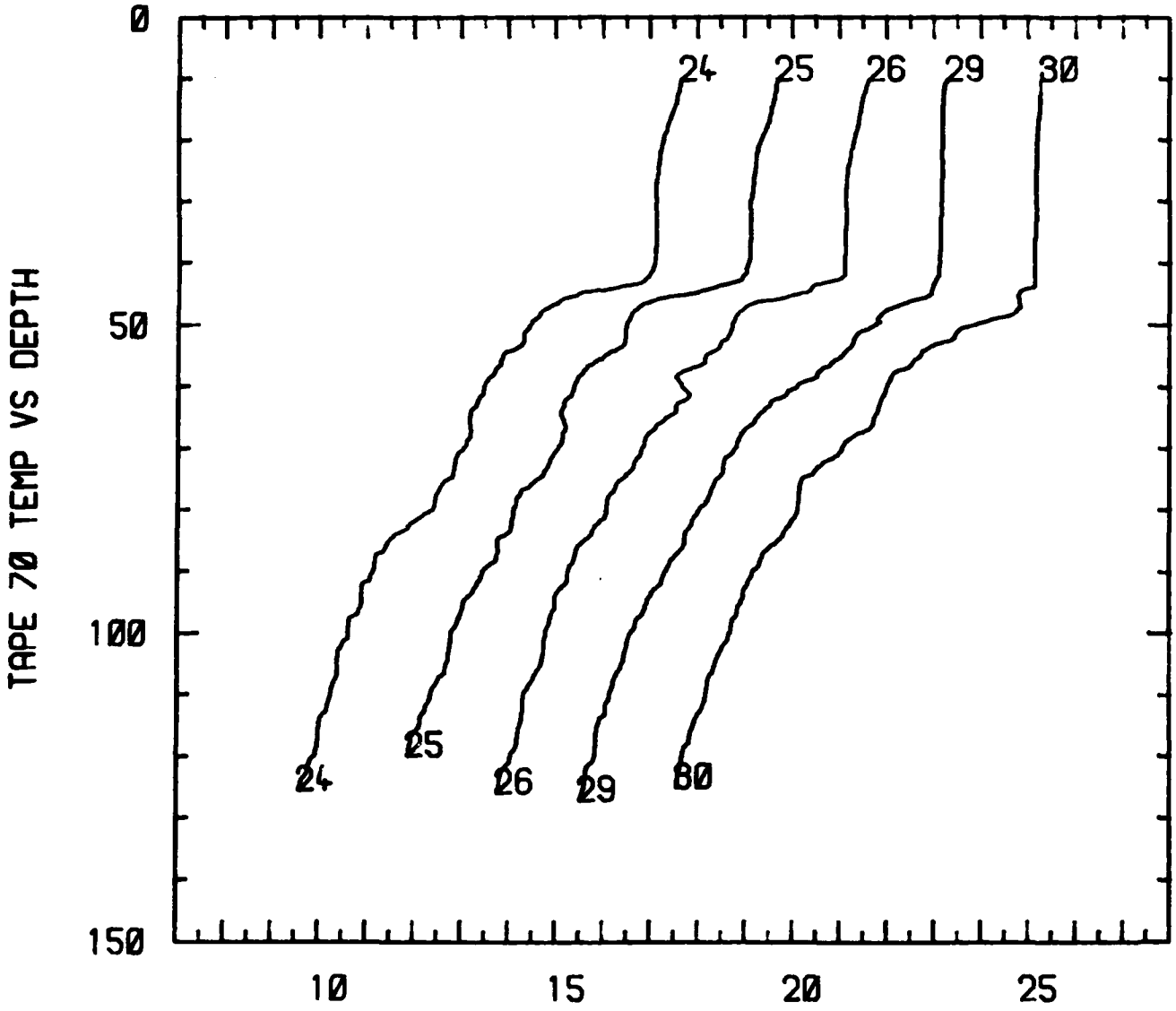
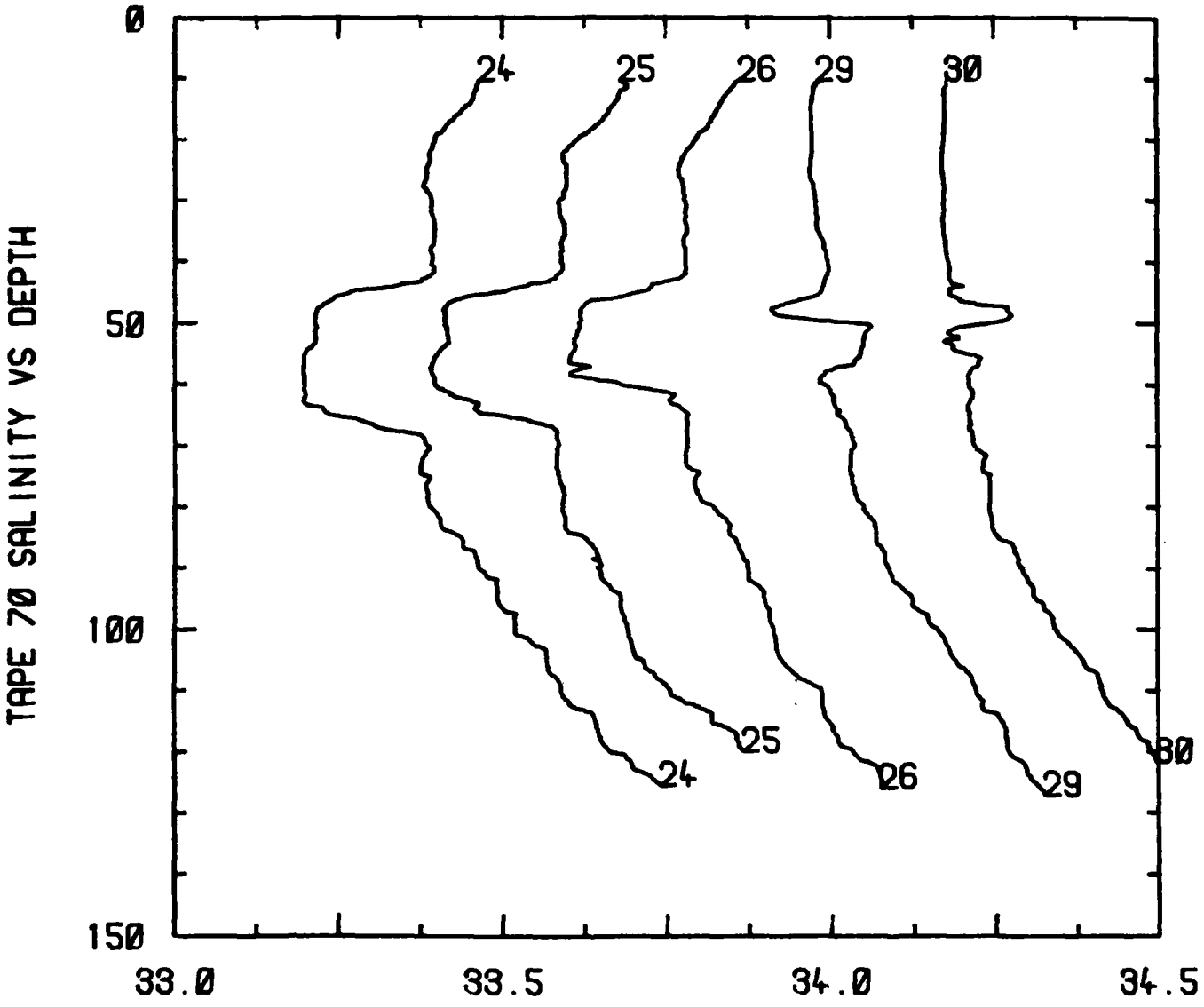


RSVP: UNIT 5 NOVEMBER 14, 1983 2235-2322 GMT

OFFSET BETWEEN PROFILES: 2.0 DEGREES

SHIP'S SPEED 5.4 KNOTS



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OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

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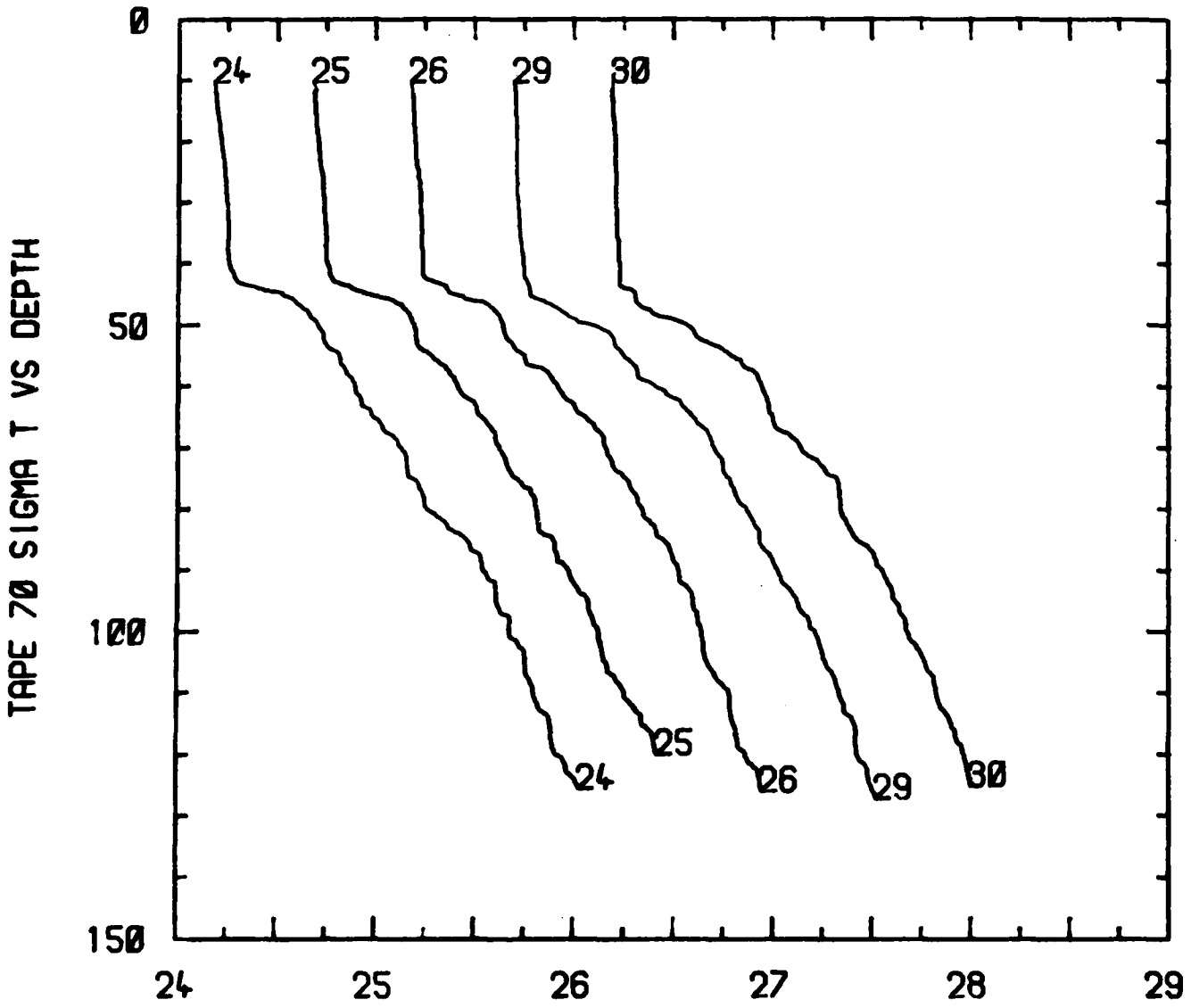

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OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

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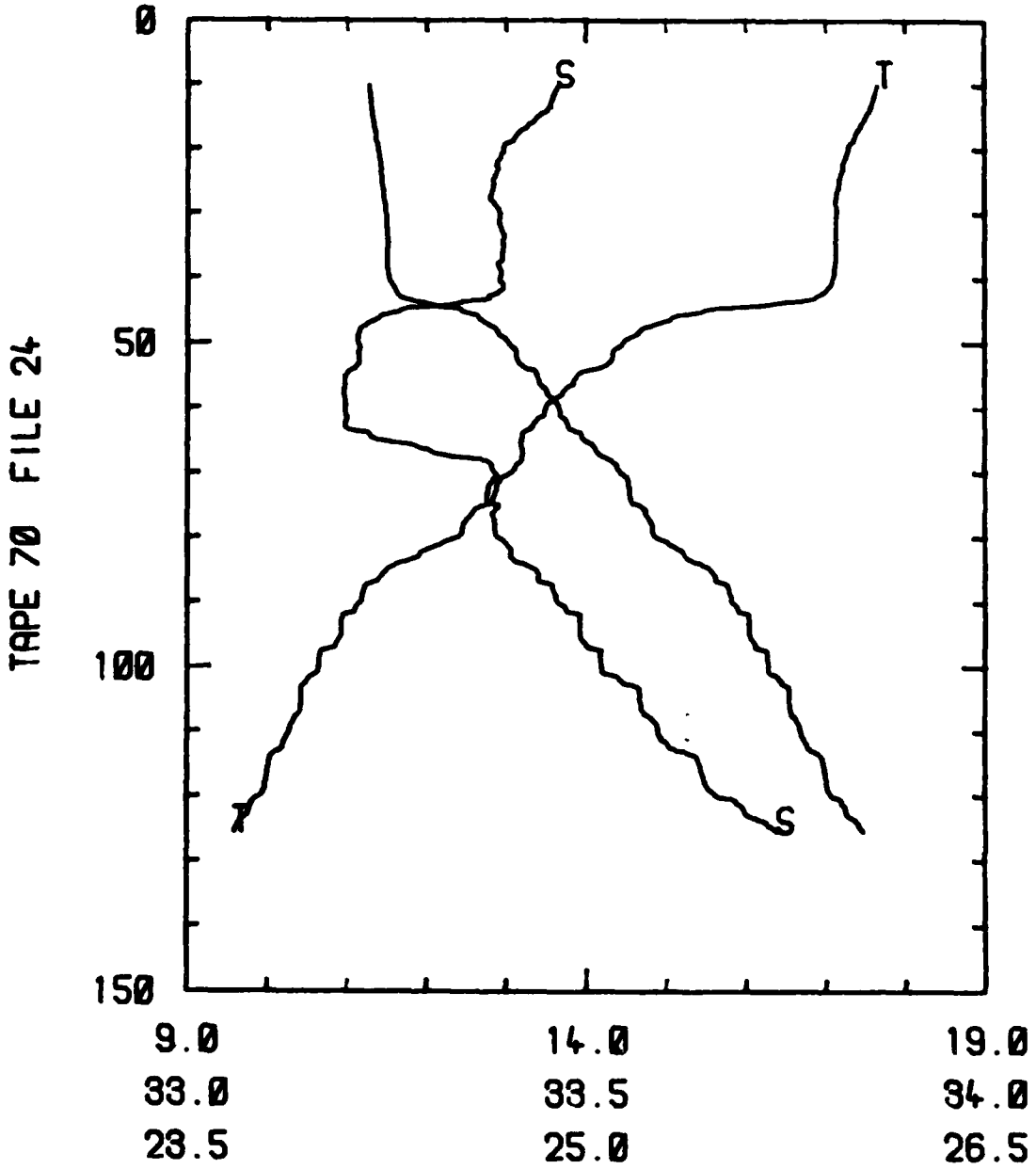

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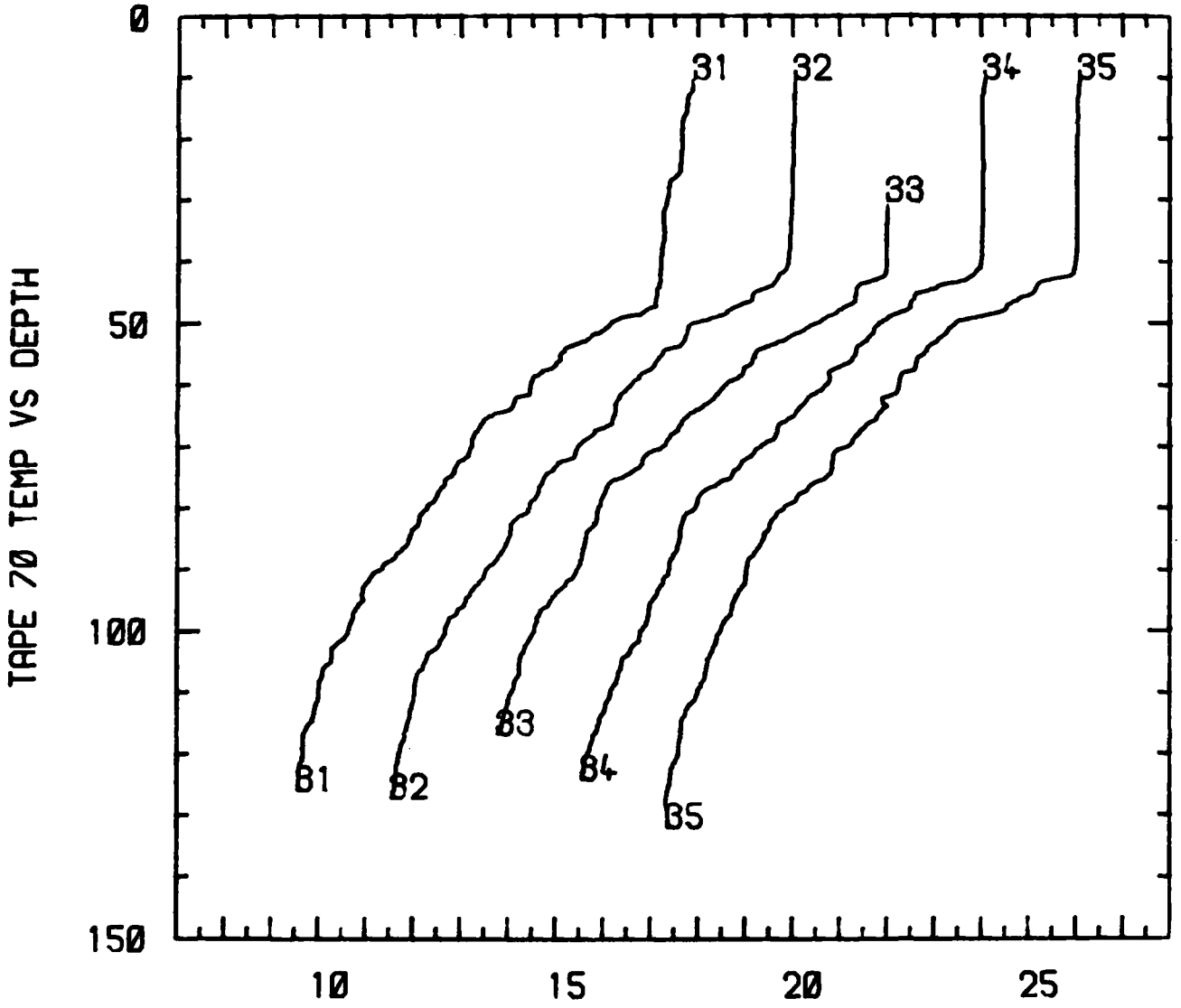

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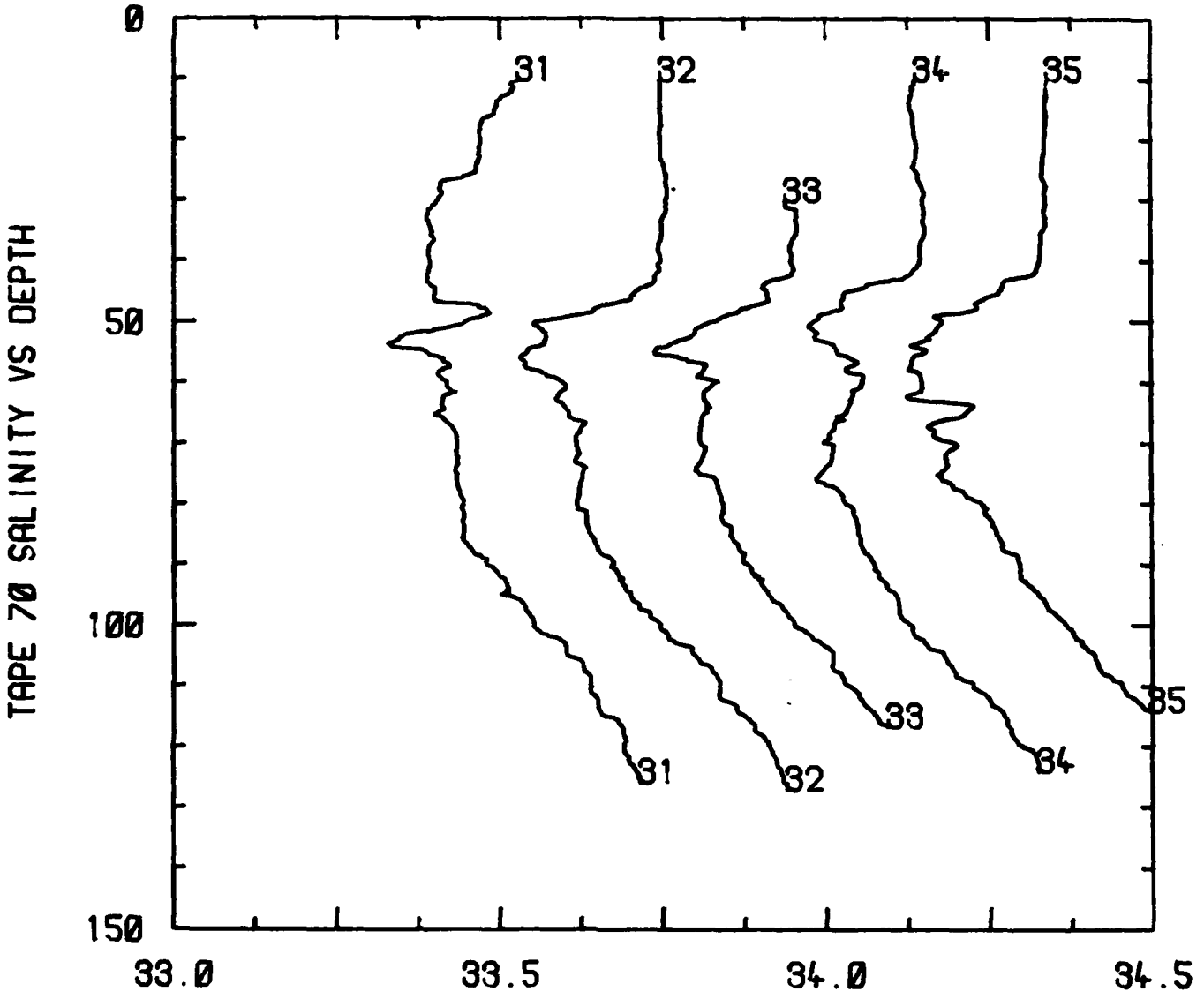

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OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

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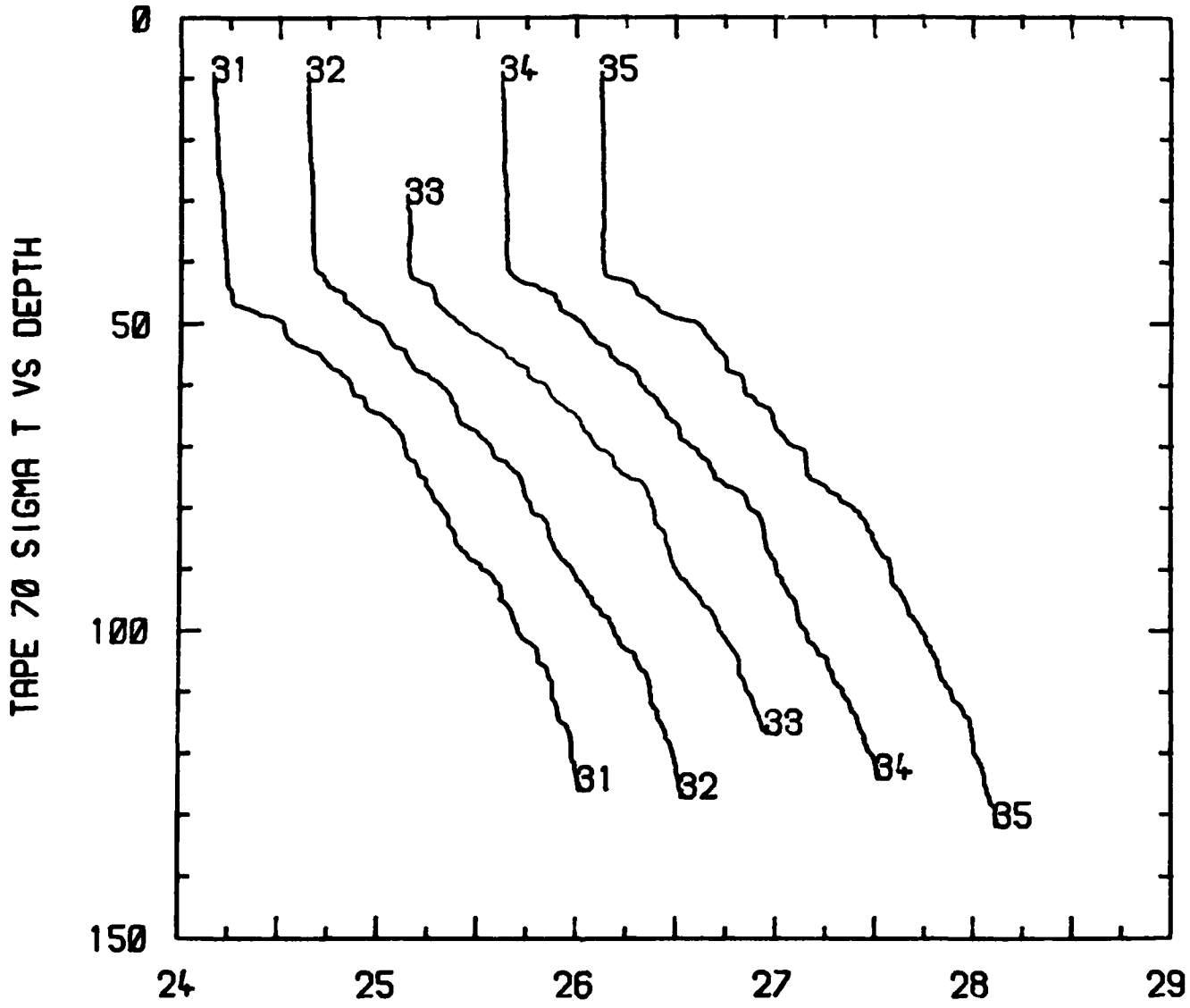

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OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

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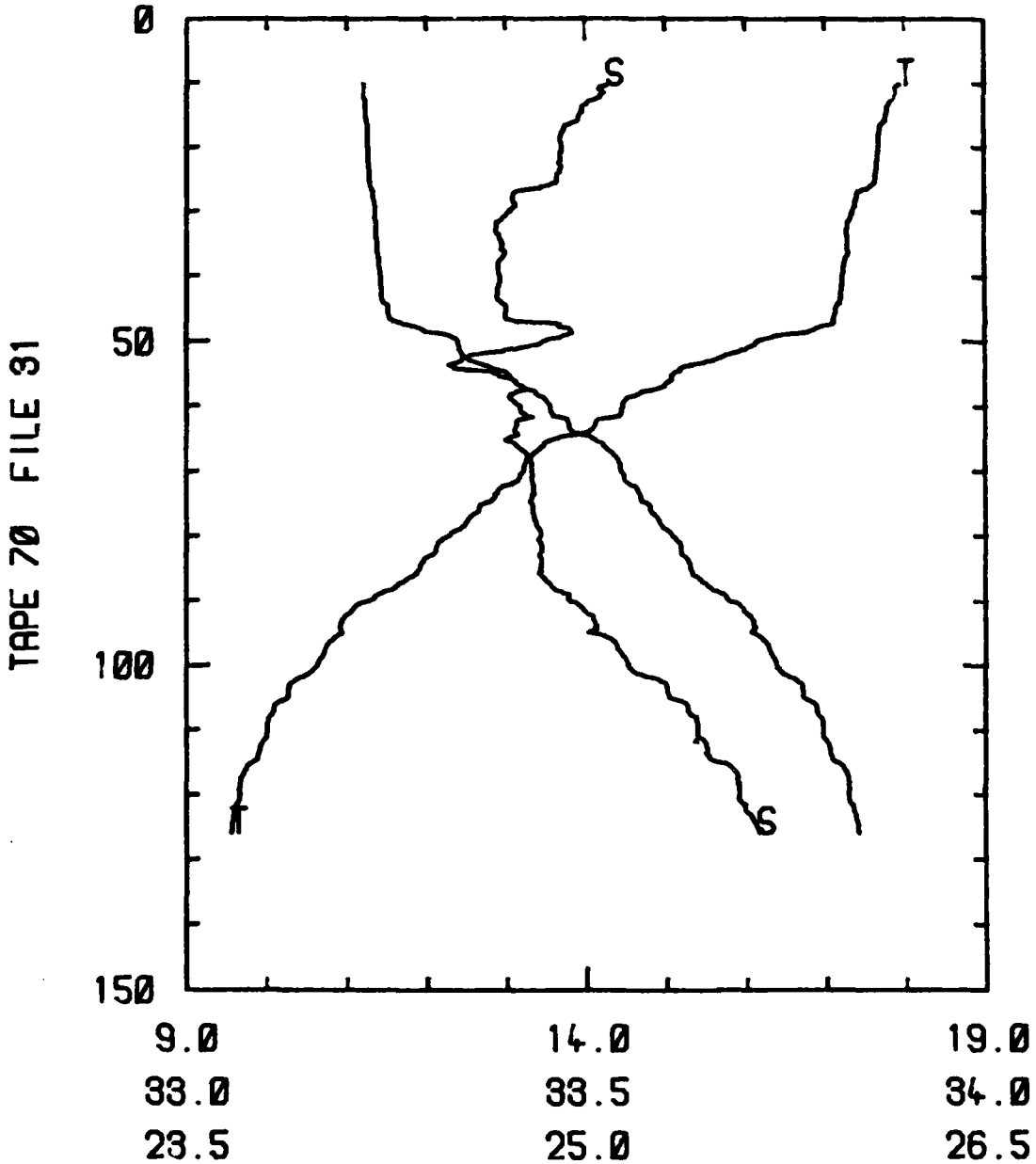

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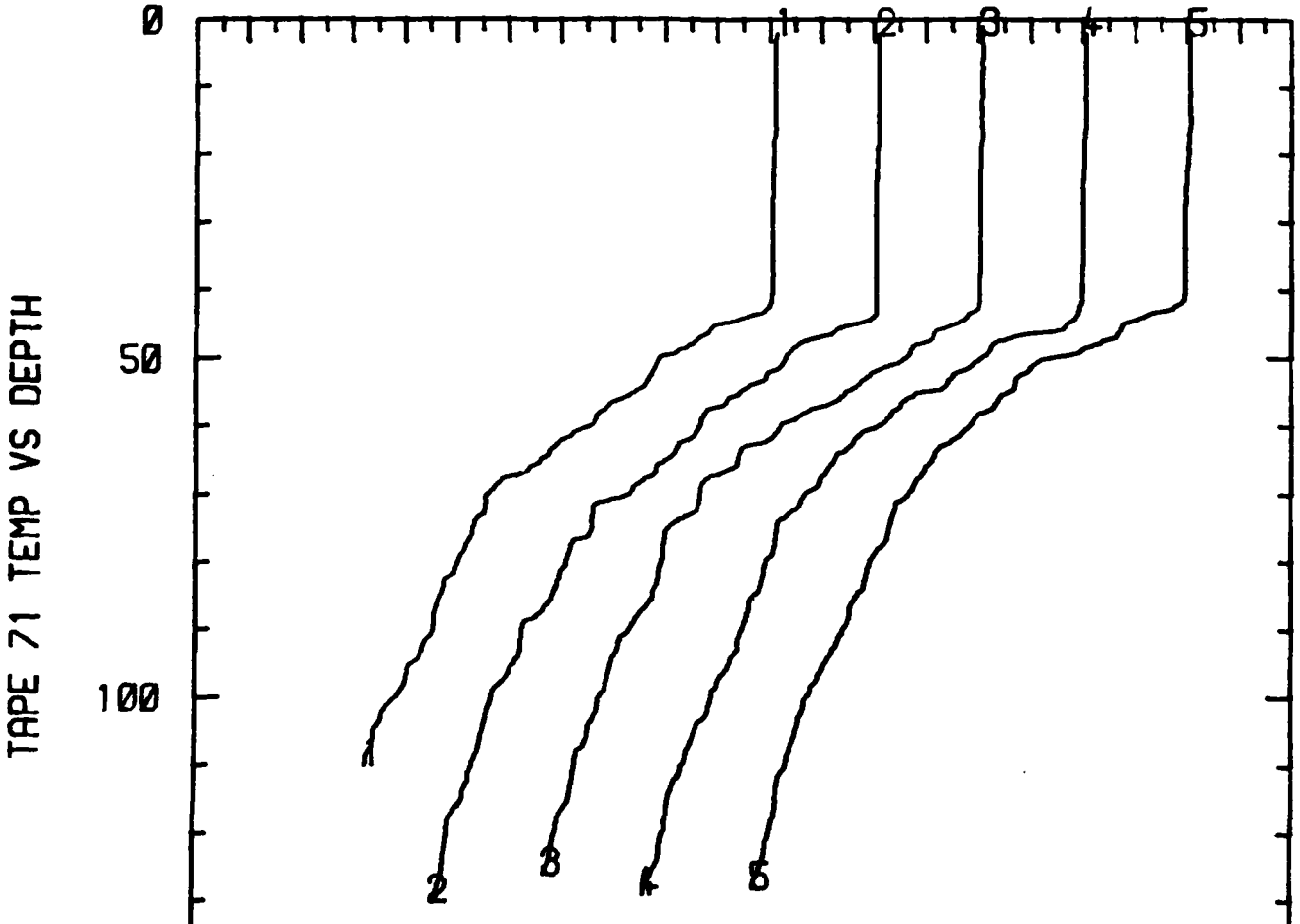

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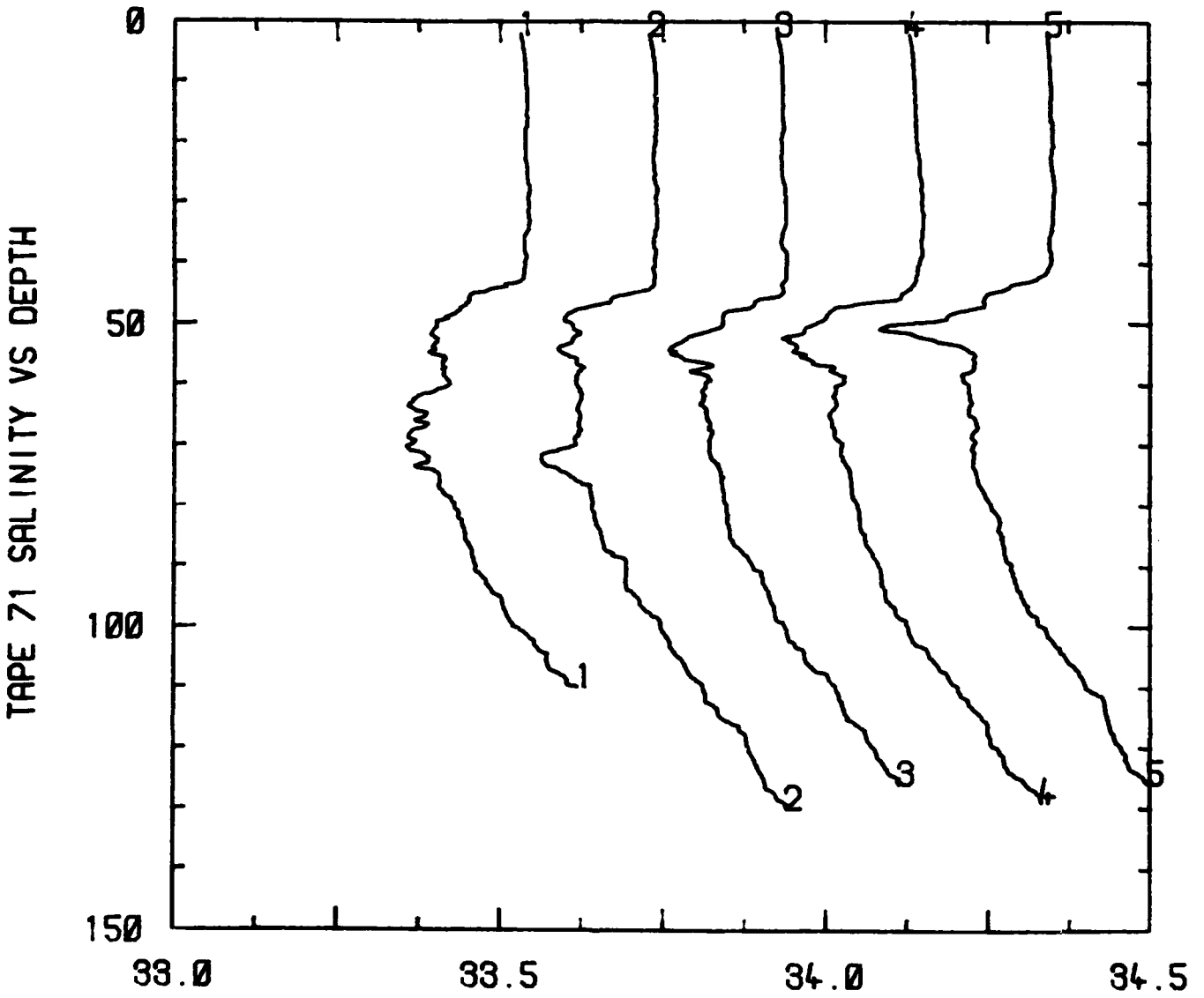
OFFSET BETWEEN PROFILES: 2.0 DEGREES

SHIP'S SPEED 5.4 KNOTS



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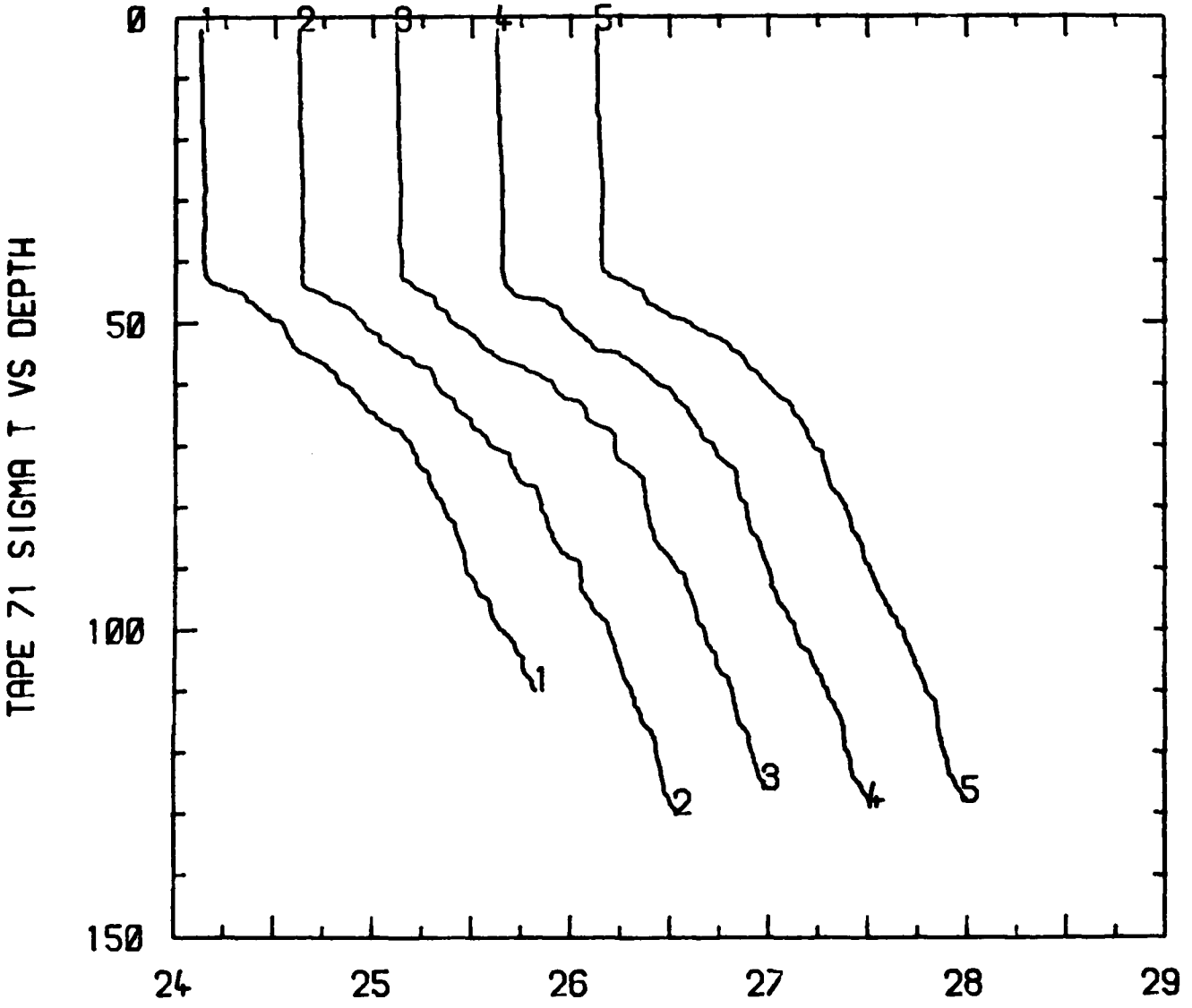

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OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

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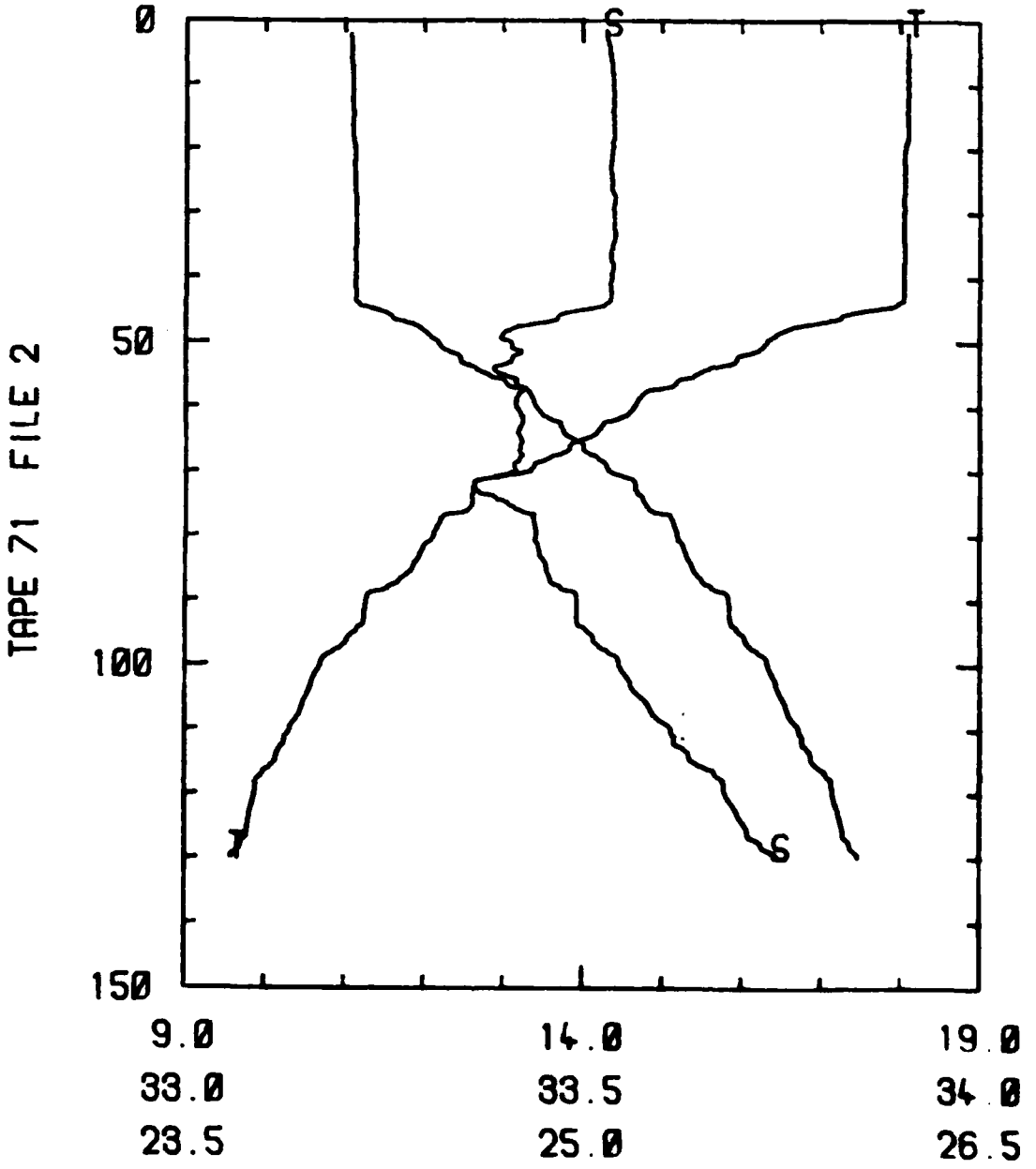

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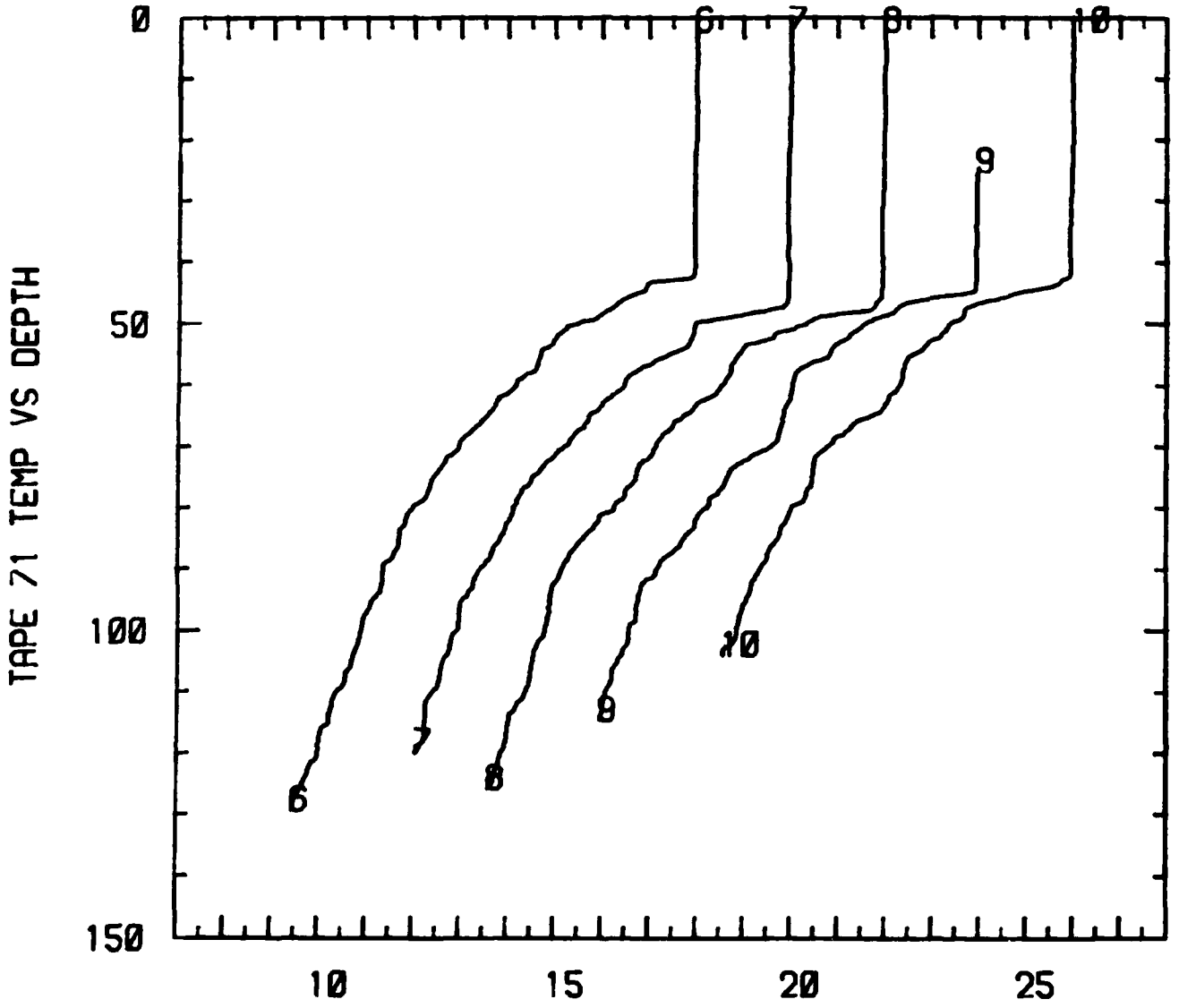

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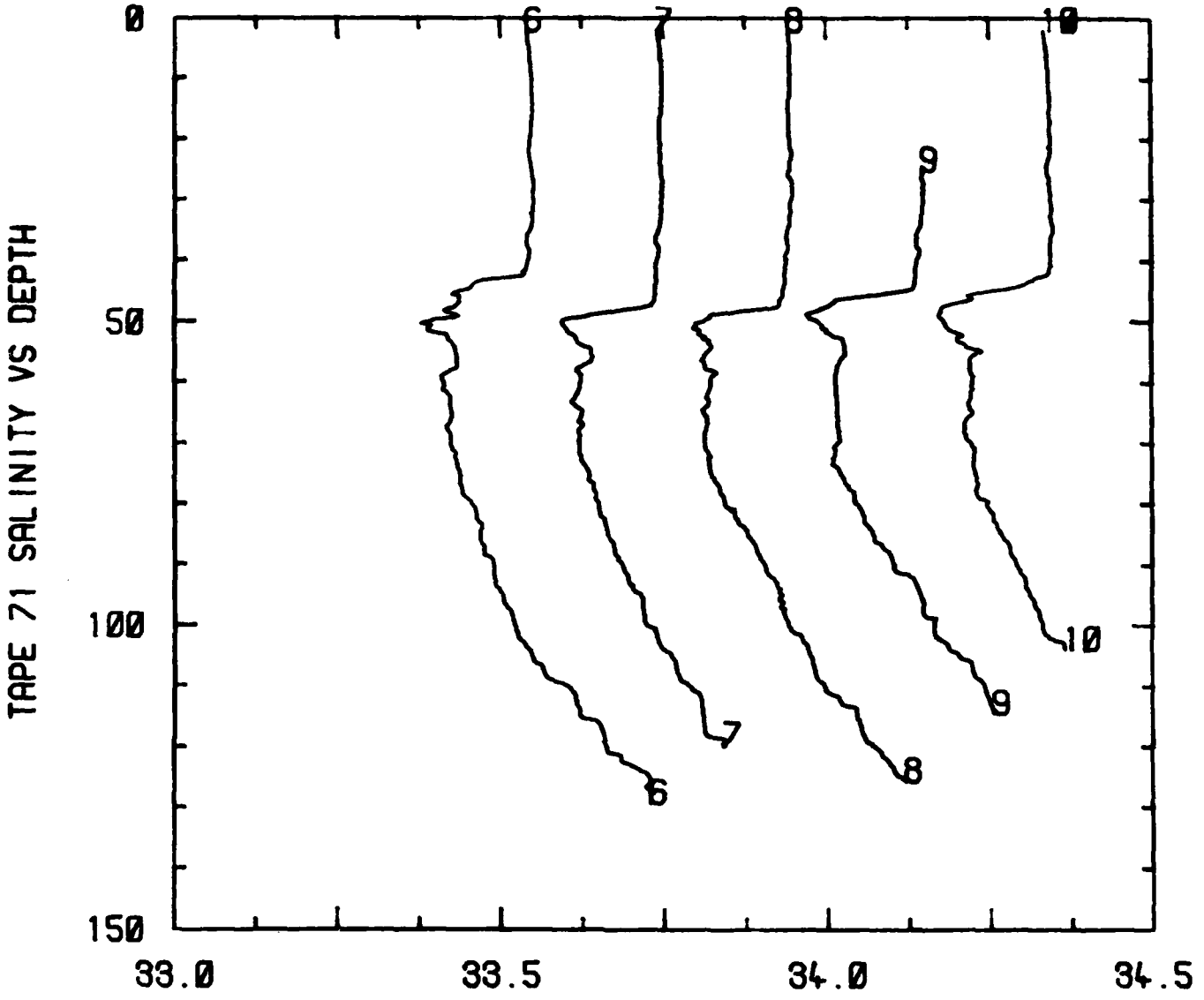
OFFSET BETWEEN PROFILES: 2.0 DEGREES

SHIP'S SPEED 5.4 KNOTS



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OFFSET BETWEEN PROFILES: 0.2 PARTS PER THOUSAND

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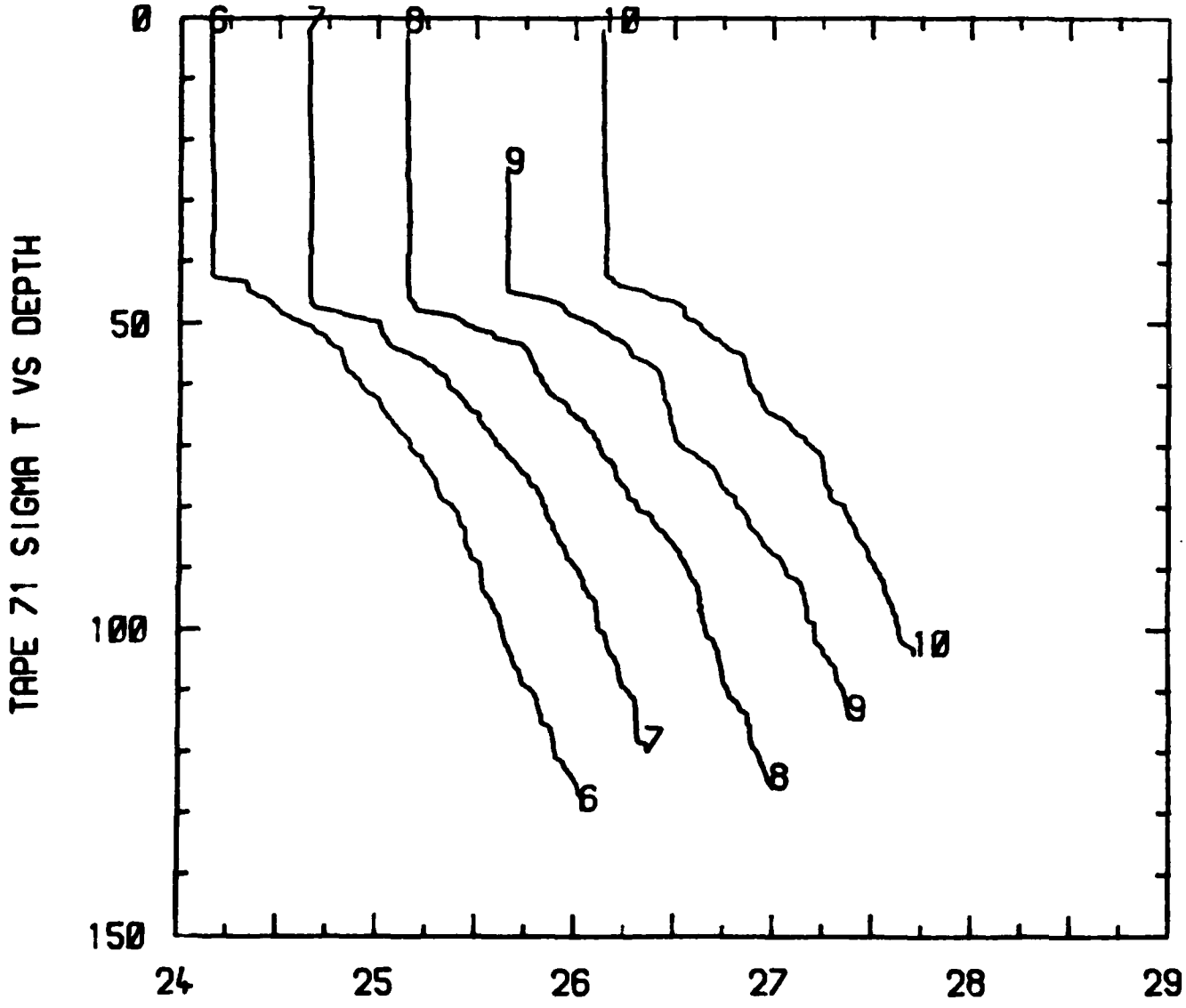

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OFFSET BETWEEN PROFILES: 0.5 SIGMA T UNITS

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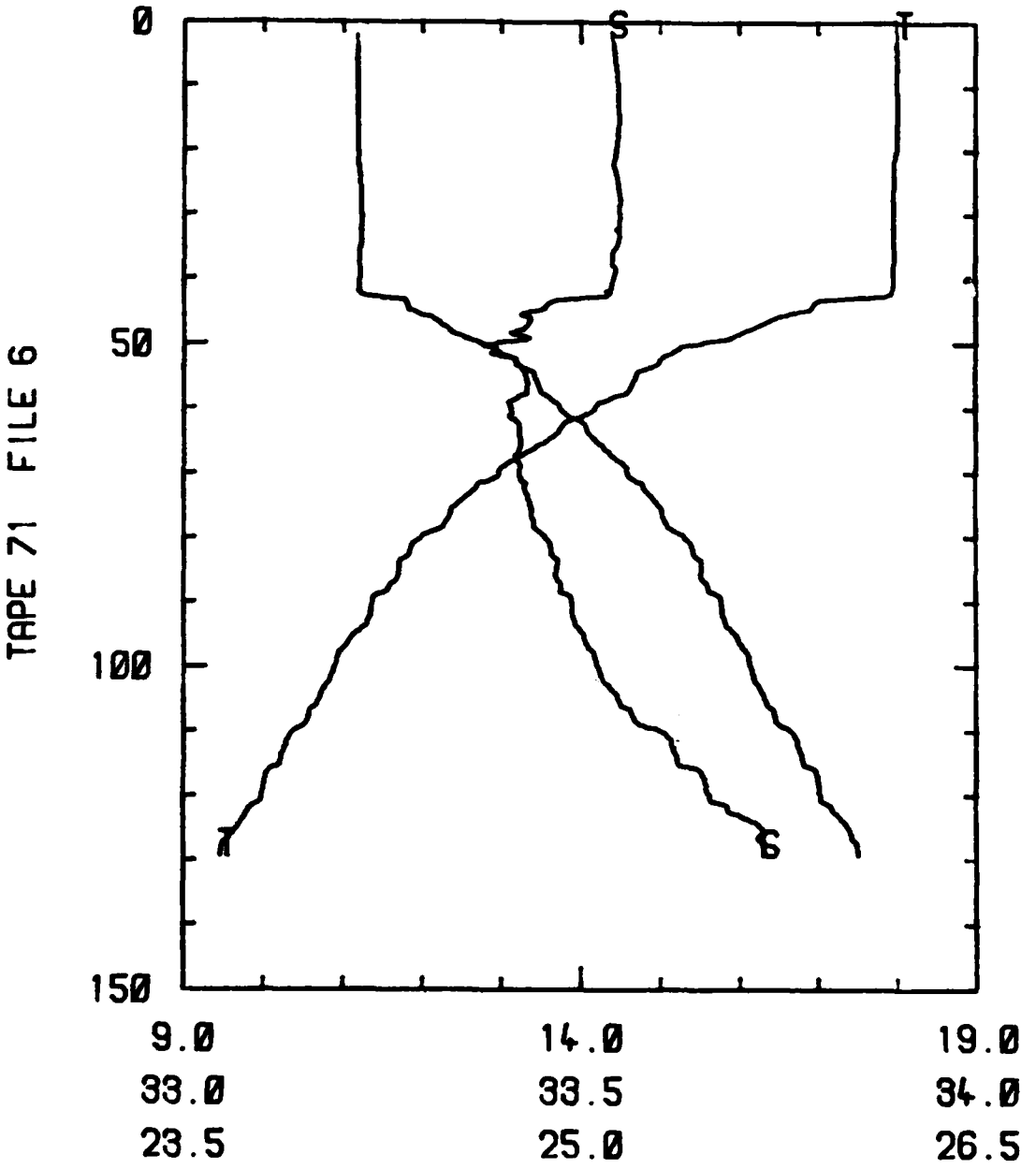

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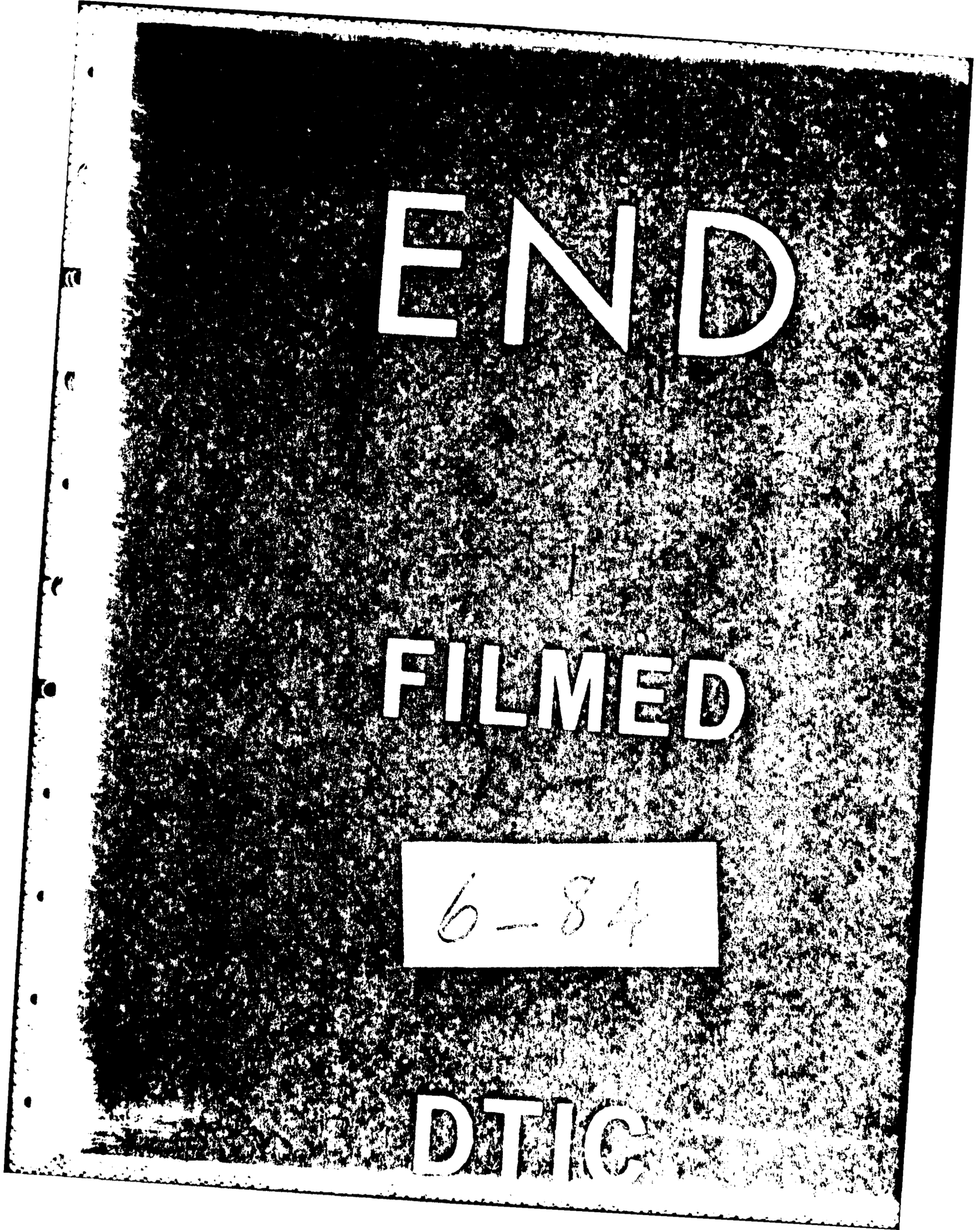
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